DIGITAL IMMIGRANTS TEACHING DIGITAL NATIVES:

A PHENOMENOLOGICAL STUDY OF HIGHER EDUCATION FACULTY PERSPECTIVES ON TECHNOLOGY INTEGRATION WITH ENGLISH CORE CONTENT

by

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ABSTRACT

In the last two decades, technology use has escalated and educators grapple with its advances and integration into the classroom. Issues surrounding what constitutes a literate society, the clarion calls for educational reform emanating from US presidents to parent teacher organizations, and educators' ability to cope with advances in technology in the classroom demand attention. Therefore, the purpose of this qualitative study was to explore and understand the professional and educational experiences of six English faculty members teaching undergraduate courses at Midwest universities. Using the framework of Technological Pedagogical Content Knowledge – TPACK (Koehler and Mishra 2008), the major focus of the study was to determine how faculty members understood what characterized the nature of teaching with technology in undergraduate classrooms.

Results of this study revealed the following five themes showing how the participants were introduced to technology, how they assimilated it into their pedagogy, and how they integrated it into teaching practice:

Theme 1: Early pioneers in using technology with English course content

Theme 2: Constant evolution of technologies proved to be challenging

Theme 3: The changing nature of student learning prompted investment in teaching with technology

Theme 4: Expanded opportunities for depth and breadth of content

Theme 5: Technology, pedagogy, and content are seamless in learning

This study has the potential to impact the nature of illustrating the methods and techniques used by the six participants as they merge technology, pedagogy, and content knowledge and set in motion classroom practices that assist faculty at all levels to develop

and teach technology skills necessary for the 21st century and to better prepare students for thinking critically about how to use digital advances.

CHAPTER 1:

Introduction

Many teachers in today's educational system struggle daily to keep up with the latest digital obsession, battle against the incursion of cell phone use and texting in their classrooms, and caution students from elementary schools to colleges about the dangers of social networks such as Facebook and the potential for cyber identity theft. Amidst the societal pressures and apparent "indoctrination" of technology and successive innovations, a persistent theme that needs to be addressed is how teachers adjust to these technological developments and separate necessary and needed technology from fleeting trends. Depending on a teacher's ability to access technology, some may find themselves in the role of being "digital immigrants" teaching students who are "digital natives." Prensky (2001), used these terms to describe those who grew up with technology as a part of their lives (digital natives) and those who adopted technology later on in their lives (digital immigrants). However, being a "digital native," as many students are today, does not necessarily infuse those students with digital literacy, nor does it preclude "digital immigrants" from becoming technologically literate. In fact, Prensky (2009) has since updated his original premise by extending his insight into digital literacy and knowledge pointing out that "the distinction between digital natives and "digital immigrants" will become less relevant," and he calls for us to begin to "think in terms of digital wisdom" (para. 1). He also acknowledges that "[t]echnology alone will not replace intuition, good judgment, problem-solving abilities, and a clear moral compass" (Prensky, 2009, para. 2), but asks for movement toward "digital wisdom" through a marriage of sorts between our brains and digital technologies. Prensky (2009) also makes the argument that

technology increases our capabilities and sees digital technologies as a way to "enhance our minds and lead to greater wisdom" (para. 12). Until that day, teachers and students need to make some transitional steps and incorporate measures that will provide the skills necessary to gain insight, understanding and wisdom. With Prensky's words in mind, two questions require attention: what does it mean to be digitally literate and how do faculty members and students achieve that goal through the infusion of technology into course content? For the purposes of this study, the definition of being digitally literate will include a fundamental knowledge base surrounding skills that allow having the ability to adapt to and use technology. A second component includes a critical perspective that allows the user to reflect and question the use of and appropriateness of any given technology.

What teachers require is a clear concept of what it means to be digitally literate in today's society and knowledge of the means and methods used to not only promote, but also cultivate digital literacy in themselves and their students. Having an established understanding of literacy provides a direction for pedagogy; teachers may then move literacy and learning, supplemented with technology, toward critical digital literacy.

The definition of literacy and associated terms are currently in flux and not confined anymore to merely reading and writing. Rather, there are subsets of literacy based on technology and information gathering. The most commonly used terms related to these subsets found in current literature include, but are not limited to, information literacy, digital literacy, computer or web literacy, media literacy (Holum & Gahala 2001, Center for Media Literacy, 2010; DeBenedittis, 2010), multiple literacies, and critical literacy (Kellner, 1998; Masney & Cole, 2009). For the purposes of this study however, the term critical digital literacy will be used.

So, what does it mean to be literate? Francis Bacon (1561-1626), found that "reading maketh a full man, conference a ready man, and writing an exact man" (p. 102). Even before Bacon's time and up until the turn of the century, a common definition of literacy was based on one's ability to produce and recreate selected patterns of paintings or scrawls on a cave wall, deciphering the printed page, or sitting in front of a typewriter to produce a novel – essentially the ability to read and/or write. This measure of literacy has been in place for some time, but with the advent of newer, more advanced technologies, the definition must be amended. Jones-Kavalier and Flannigan (2006) call for an expanded version of literacy pointing out that "[i]n our 21st century society – accelerated, media-saturated, and automated – a new literacy is required, one more broadly defined than the ability to read and write" (p. 8). Jones-Kavalier et al. (2006) go on to state that, "literacy includes the ability to read and interpret media (text, sound, images), to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments" (p. 9). Prensky (2001), notes that "today's students *think and process information fundamentally differently* from their predecessors" (para. 4), which leads many of the "digital immigrant" teachers to ponder how best to implement technologies in the classroom that address and respond to the literacy demands of the 21st century, "digital native" student. Ribble, Bailey, and Ross (2004) take the issue further and call for schools to prepare "digital citizens" intimating that teachers prepare students in nine areas of behavior related to interaction with technology that include, etiquette, communication, education, access, commerce, responsibility, rights, safety, and security (p. 7).

Potential problems may arise for some teachers because they were introduced to technology later in life (or did not have access to technology) and may not have adopted the skills or fully adapted to the digital environment; or, they may have become jaded by the constant upgrades and changes to software and hardware. Koehler and Mishra (2009) highlight this perception noting that:

> Teachers often have inadequate (or inappropriate) experience with using digital technologies for teaching and learning. Many teachers earned degrees at a time when educational technology was at a very different stage of development than it is today. It is, thus, not surprising that they do not appreciate its value or relevance to teaching and learning. (p. 62)

Not only do these identified teachers think differently, as Prensky (2002) hints, but they may also process information, not through a technologically wired system, but a foundational locus based on more traditional, linear reading and writing literacy patterns, which may lead to many challenges faced in the classroom as Koehler and Mishra (2009) imply.

In 1989, the American Library Association noted that "[t]o be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information" (Campbell, 2004, p. 2). While some teachers may be "digital immigrants," they possess the necessary skills needed to locate, evaluate, and use the information because these skills preclude technology. Similarly, The Centre for Literacy in Quebec (2006) points out that:

> In a technological society, literacy extends beyond the functional skills of reading, writing, speaking, and listening to include multiple literacies such as

> visual, media, and information literacy. These new literacies focus on an individual's capacity to use and make critical judgments about the information they encounter on a daily basis. (p. 1)

Alvin Toffler, in his influential book *Future Shock* (1970), further explained that students need to be instructed how to "learn, unlearn, and relearn" (p. 271). The ability to learn, unlearn, and relearn is exactly what is expected of all who use technology, native or immigrant, as new versions and iterations of hardware and software become more common. Faculty at all levels wrestle with defining what characterizes a literate student, maintaining digital competency, and integrating pedagogical standards that prepare students for the future. At the core of this dilemma lies another issue of maintaining strong rhetorical principles that should guide both student and teacher toward the ability to interpret media, think critically about information presented to them, and develop problem solving strategies that enable students to make ethical media choices.

Statement of the Problem

Tyner (1998) noted that, "historical shifts in the tools of literacy change conceptions about what it means to be literate" (p. 13), which may cause some teachers at both the K-12 and higher education institutions to struggle with adequately contextualizing the constantly evolving nature of literacy, deal with modifications to technology, and respond with pedagogically sound processes for student instruction. Questions surrounding these issues beg for a view of literacy and technology, which, according to Tyner (1998), "helps inform these questions … [and] put contemporary anxiety and hyperbole about new communication tools into perspective" (p. 13). Thus, a working definition of technology includes, but is not limited to, the usage and knowledge of present day digital machines and

systems for the purpose of solving problems, performing or creating digital media, or advancing knowledge through the use of digital technologies. To help manage the digital perspective, Thoman and Jolls (2004) refocus attention away from jumping on the digital bandwagon and onto the skills necessary for students of all ages to navigate the evolutionary nature of technology when they point out that it is not enough to merely be able to read the printed word; all learners need the ability to critically interpret the images of the existent multimedia culture (p. 1).

Another prevailing issue is how faculty view technology and how they use it. According to Doering and Veletsianos (2008), many teachers use technology in superficial ways by simply integrating technology in their coursework as a replacement tool, for instance requiring students to submit homework electronically rather than on printed paper (p. 102). Additionally, the technology available to the "digital native" student does not always make its way into the classroom. Teachers might be reluctant to integrate texting, Facebook, or Twitter activities into the curriculum; therefore, faculty are left with the task of "gauging whether or not the tool will stimulate student interest without becoming a distraction" (Kingsley 2010, p. 4). Moreover, because of the evolutionary nature of technology, teachers have had difficulty adapting to the changes technology brings and deciding on what technology to take into the classroom. Tyner (1998) pointed out that in "such a continuous change process, it is difficult to say which agent drives the change: the communication technologies, the literacy practices, or the institutional need for renewal in response to larger, historical factors" (p. 16).

Since a portion of the problem of technology's integration falls on English faculty, this study explored the debate surrounding the multiplicities of literacy, relationships

concerning the relevancy of digital literacy in undergraduate English courses, and the practical application surrounding the integration of digital literacy within undergraduate English courses. The confluence of these areas can be found in Shulman's (1986) Pedagogical Content Knowledge (PCK) model and later expanded by Mishra and Koehler (2006) into Technological Pedagogical Content Knowledge (TPACK) represented by the model in Figure 1.1.

Statement of Purpose

Therefore, the purpose of this qualitative phenomenological study was to explore and describe the experiences of "digital immigrant" higher education faculty teaching undergraduate English courses with technology at four-year public universities in the Midwest.

Research Question

This phenomenological study adds to the body of research on the influences that technology has on teaching practices in higher education English courses. In addition, I wanted to observe that as the technology evolved, how undergraduate English faculty adapted to those changes and advances and what sort of impact the adaptations had on their pedagogy and teaching. Therefore, I asked the following overarching research question: *How do "digital immigrant" faculty teaching English at a four-year public university in the Midwest describe their experiences with technology and teaching their content area in undergraduate English?*

This question addresses two major concerns, the first being how technology impacts the teaching of English content knowledge, which is central to my concerns about whether or not critical, rhetorical skills were components of teaching methodologies in

undergraduate English classes. The second concern seeks to understand how the teachers constructed knowledge and developed critical digital literacy depicted as the convergence of technology, pedagogy, and content knowledge in the TPACK model.

Conceptual Framework

According to the National Council for Accreditation of Teacher Education's (NCATE) *Professional Standards for the Accreditation of Schools, Colleges, and Departments of Education,* a "conceptual framework is the underlying structure . . . that sets forth a vision . . . and provides a theoretical and empirical foundation" (p. 8-9) for the direction of a study. Additionally, Smyth (2004) pointed out that, "[w]hen clearly articulated, a conceptual framework has potential usefulness as a tool to scaffold research and, therefore, to assist a researcher to make meaning of subsequent findings" (para. 2). Therefore, in order to better situate the principle foci of this study, I relied upon the work developed by Shulman (1986) and expanded upon by Mishra and Koehler (2006) and their studies vis-a-vis technology, pedagogy, and content knowledge (Figure 1.1). The TPACK concept is a theoretical framework that established a basis for conducting this study and established the context from which emerged the study's design and theoretical perspective of socially constructed knowledge as it pertained to the influence of teaching with technology on pedagogy and content knowledge in undergraduate English courses. A more detailed review of the multiple components of the TPACK model can be found in Chapter 2.

In order to better understand the components of the TPACK framework, it was important to understand TPACK's inception. The initial concept, Pedagogical Content Knowledge (PCK), is attributed to Shulman (1986) when he observed that:

> the emphases on teachers subject knowledge and pedagogy were being

> treated as mutually exclusive domains in research concerned with these domains The practical consequence of such exclusion was production of teacher education programs in which a focus on either subject matter or pedagogy dominated. To address this dichotomy, he proposed to consider the necessary relationship between the two by introducing the notion of PCK (p. 6).

Often, pedagogy and content knowledge are viewed as separate entities that are linked in a broad educational sense but still addressed in isolation. Shulman (1986) argued for "pedagogical content knowledge" as the content knowledge that deals with the teaching process and further proposed that teachers and teacher preparation should focus on "the aspects of content most germane to its teachability" (Shulman, 1986, p. 9).

Mishra and Koehler (2006) supplemented Shulman's concept to incorporate two other facets – Technological Content Knowledge and Technological Pedagogical Knowledge, which combined to form the model framework (TPACK) seen in Figure 1.1. According to Mishra and Koehler (2006):

> [t]he TPACK approach goes beyond seeing these three knowledge bases in isolation. On the other hand, it emphasizes the new kinds of knowledge that lie at the intersections between them. Considering P and C together we get Pedagogical Content Knowledge (PCK), Shulman's idea of knowledge of pedagogy that is applicable to the teaching of specific content. Similarly, considering T and C taken together, we get Technological Content Knowledge (TCK), the knowledge of the relationship between technology and content. At the intersection of T and P, is Technological Pedagogical Knowledge (TPK),

which emphasizes the existence, components and capabilities of various technologies as they are used in the settings of teaching and learning. (para. 2-3)

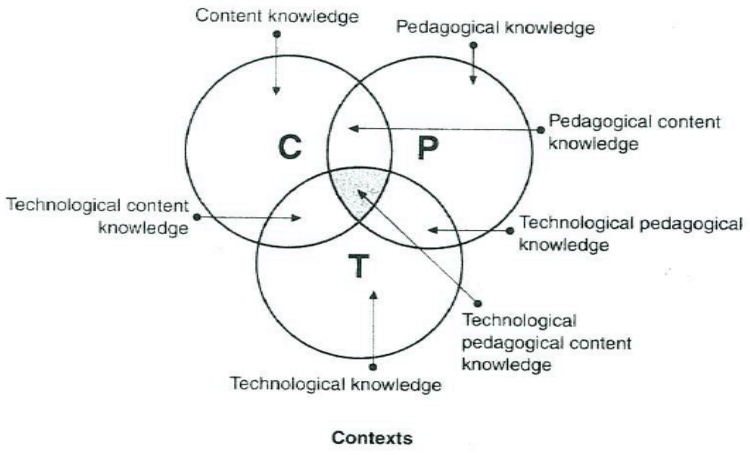

Figure 1.1 Mishra and Koehler (2006) TPACK concept (based on Shulman's PCK model) of integrating technology, pedagogy, and content knowledge.

During the evolution of the term literacy, little research could be found documenting a current, all-encompassing definition of literacy but rather the findings point to the emergence of multiple terms and meanings of literacy previously mentioned (Holum & Gahala, 2001; Kellner, 1998). Additionally, there was little research describing the nature of the experiences of higher education English faculty as they attempt to develop adaptable methods for their own use and for teaching multiple literacies. The research that has been done on multiple literacies focused mainly on K-12 settings (Center for Media Literacy, 2008; Mishra & Koehler, 2009) while others addressed the literacy and technical literacy in a broader, general sense (Campbell, 2004; Jones-Kavalier & Flannigan, 2006Klaus, 2001; Meyer & Rose, 2000). Thus research that focused on higher education experiences of English faculty and their students is still underrepresented. This study sought to situate

digital literacy within the broader spectrum of literacy categories currently in place as well as describe the experiences of higher education English faculty as they cultivate the emergent skills necessary to fully integrate technology into their courses and meet the literacy needs of undergraduate students at four-year public universities.

Describing the experiences of English faculty as they interact, not only with technology but also with students, may provide a better understanding of how teachers and students construct knowledge in a highly digital era. Investigating the teaching experiences of "digital immigrant" instructors, as they interact with technology and digital native students, may also supply rich data about "the complexity of views" held by English faculty and the potential "subjective meanings of their [digital immigrants] experiences" (Creswell, 2009, p. 8).

As technology continues to have a greater impact on lives, there is a greater need to position technology use within an educational framework that not only allows access to technology but also provides guidance about how to best use it in a learning environment. Educational entities struggle with defining literacy and ways in which to integrate technology as a component of teaching in order to construct meaning within various digital contexts and meaningful experiences in the classroom. For instance, a small sampling of the difficulties encountered by students and faculty as they attempt to bridge the gap between "historical and cultural norms" (Creswell, 2009, p. 8) within and outside the U.S. appear as: why should digital writing be taught (Kairos, 2005), how do organizations provide K-12 teachers with orientation guides to media literacy education (Literacy for the 21st Century, 2008) and how do organizations help form students' technological development (Ribble, Bailey, and Ross, 2004).

Significance of Study

This study contributes to the literature on technology and teaching with technology by relating the experiences and practices of undergraduate English teachers in a university setting. By understanding the types of experiences this population had in the classroom, other faculty may replicate those practices as they compile and institute their own adaptive strategies and facilitate a more focused definition of what it means to be digitally literate in the 21st century. This study also attempts to situate technology within the discipline as a component of English curriculum, yet subordinate to the critical, rhetorical ideology governing teacher practice.

Definitions of Terms

This section is devoted to identifying and defining terms commonly found in the associated literature. Throughout the course of this study, numerous terms coupling literacy with facets of technology have been used almost interchangeably, leading to some ambiguity and confusion in trying to pinpoint an appropriately definitive term. The lack of such a fundamental term may add to the absence of some sound pedagogical standards for teaching with technology. Therefore, for the purposes of this study, and in order to link with the TPACK framework and incorporate the critical, rhetorical component, the term critical digital literacy will be used.

Literacy: The term itself is more of an overriding umbrella that encompasses subsets of the term. The most common terms found in the literature include, but are not limited to basic reading, writing and interpreting, but further extend themselves into information literacy, digital literacy, computer or web literacy, multiple literacies, multi-modal literacy, and media literacy. For purposes of this study the term used

will be critical digital literacy with a focus on technology as a means of receiving, transmitting, evaluating and expressing ideas (Selfe 1999).

Critical Technological Literacy: Cynthia Selfe (1999) suggests a "critical technological literacy" that promotes a discerning, reflective rhetorical awareness of "the complex set of socially and culturally situated values, practices, and skills involved in operating linguistically within the context of electronic environments, including reading, writing, and communicating" (p. 148). Selfe also proposes that students and teachers "carefully analyze, [and] pay attention to, the technology-literacy link at fundamental levels of both conception and practice" (p. 148). Also, literacy is based on the ability to compose, interpret, and evaluate discursive and non-discursive text by any technological means or media.

Critical Digital Literacy: Term generally associated with other literacy terms (information, computer, multimedia, and media literacy). Using Jones-Kavalier & Flannigan's (2006) definition, digital literacy "represents a person's ability to perform tasks effectively in a digital environment, with 'digital' meaning information represented in numeric form and primarily for use by a computer" (p. 9). Ezziane (2007) sees digital literacy within a perspective focusing on "the basic practical skills needed to use computer hardware, software, and networks" (p. 183). A more workable definition will include the ability to recognize a growing assortment of interpretive skills used to perform and solve problems in using the current technologies of the time.

Digital Native: Students (K through college) who "have spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age" (Prensky, 2001, para 3).

Digital Immigrant: People who "were not born into the digital world but have, at some later point in our lives, become fascinated by and adopted many or most aspects of the new technology" (Prensky, 2001, para 6).

Text: Any and all forms of communication delivered in as part of any media form – written, oral, visual, or electronic.

Discursive texts: Speech and writing texts that present logical connections rather than supposition based on intuition.

Non-Discursive texts: Visual and aural texts

Summary

The goal of this study was to describe teaching experiences from the perspectives of English faculty as they worked to integrate technology in their pedagogy. Additionally, this study describes the experiences of undergraduate English faculty from a constructivist perspective highlighting areas that help frame the use of technology as a component of a rhetorically-based literacy pedagogy. Chapter One has provided a general introduction, situated the issues surrounding the problems I identified and posed the research question. Chapter Two reviews the literature about defining literacy and teaching digital literacy. Chapter Three presents the research design used emphasizing the rationale for selecting a qualitative approach, constructivist theory, and phenomenology methodology through the use of interviews as the primary method for collecting data. Chapter Four presents a composite of participants' background and current position, a composite profile of

participants' respective universities, and detailed participant profiles situated within the TPACK framework. Chapter Five describes the findings through the lens of the TPACK framework. Chapter Six provides discussion, cites implications and recommendations for undergraduate teaching and offers suggestions for further research. The chapter concludes with my reflexivity statement on this research.

CHAPTER 2:

Review Of Literature

This chapter provides a review of literature examining multiple aspects of literacy, from its early association with technology up to and including critical digital literacy, and teaching with technology. The chapter begins with a view of the evolutionary nature of literacy, referencing the past, present, and future of literacy study followed by perspectives on the expanding characteristics of literacy including critical thinking. Next, the literature looks at 21st century literacies and the influence of present-day technologies on teaching and pedagogy. The chapter continues with an investigation of critical digital literacy within the contextual framework of TPACK components and technology's influence on teaching undergraduate English courses.

A Brief Moment in Time: Evolving Characteristics of Literacy

Over centuries, literacy has taken on a multitude of definitions and explanations. From the early cave paintings of prehistoric people to the advanced technologies of today, literacy has had a long and sometimes thought-provoking life. However, the evolutionary nature of human development, as well as the country's literacy heritage, has demanded this progression. The relentless pursuit of knowledge and the ability to think and reason have put educators on a path of attempting to design programs and integrate technology to expand student knowledge. It is evident from past experiences that the educational system continuously revises old programs, practices, and curriculum usually by renewing, renaming, and then re-implementing them as a new program (Thornton, Peltier, & Perreault, 2004, p. 223). Currently, the ability to revise past practices is restricted in part because of the developing nature of new digital devices as well as new upgrades to

software. However, the debate over what characterizes literacy still exists leaving educators to work with a new paradigm, which includes fast-moving advances in technology, as they attempt to develop a new vision of what it means to be literate and teach that literacy in today's digitized world.

Referencing the Past. Even before the written word, evidence of early visual literacy can be found in cave paintings dating back to "32,000 B.C.E." (Visual Rhetoric, p. 1), which showed particular scenes or depicted hunts. Perhaps these paintings were used to pass on knowledge of specific events or act as a visual history of a particular group or clan. Consider the paint used in cave paintings as an early form of technology necessary to record a standardized form of knowledge (literacy) to the rest of the clan. The symbiotic relationship between learned society and the technologies that help record, store, and pass on (teach) information has a long history.

Even before the written word and a major part component of other primitive cultures, were oral histories, which were passed on down from generation to generation, "their preservation entrusted to the memories of successive generations of people" (Vansina, 1985, p. xi-xii). Literacy evolved from these early beginnings and continued its journey into Socrates' and Plato's time. Back then and into today, the debate over literacy exhibited some similarities that can be found in today's culture – the definition of literacy and the path that literacy took were not always met with open arms or open minds. Both Socrates (469-399 B.C.E.) and Plato (427-347 B.C.E) debated the evolution of literacy condemning the "shift away from speech to writing" exalting instead the virtues of memory (Tyner, 1998, p. 20). As literacy continued its evolutionary journey, perceptions of literacy expanded to include the influence of religious texts brought over from England. From

"1650 onward, almost all New England towns passed laws requiring reading and writing schools" (American Literacy Council, 2008, para. 16), thereby, continuing to add to the changing nature of literacy. Later, the change continued as literacy became the "ability to sign one's complete name in a registry book, [as a} prerequisite for voting during the late 19th century" (History of Literacy, 2010, para. 2). Viewed in this way, it is easy to see that the nature of literacy is constantly being shaped by social influences, the advent of newer technologies, and interactions among society. The desire to make connections with members of a community and the implementation of media and technologies of the time, which could include anything from figure painting, to printing presses, to computers, marries literacy to technology and extending literacy outward to others, in essence teaching.

Thoman and Jolls (2008) pointed out that, "the concept of 'literacy' meant having the skill to interpret 'squiggles' on a piece of paper as letters, which when put together formed words that conveyed meaning" (p. 8); Shor (1999) contended that, "*literacy* is understood as a social action through language use that develops us as agents inside a larger culture" (para. 3); and Prensky (2008) pushes the envelop even further by stating that programming literacy will distinguish a literate person. Prensky asserts that this type of literacy is, "the ability to make digital technology do whatever, within the possible one wants it to do – to bend digital technology to one's needs, purposes, and will" (p. 3). The overriding purpose of defining literacy and pursuing literacy as a society is to attempt to connect its members through a shared understanding of a particular culture and to socially construct knowledge and technology has been a means of delivery. It is evident that even the early cave paintings were a form of language and functional literacy that linked

members of the clan together in a shared language, experience, or culture. That same type of connection, only evolved, may be found in the digitized social networks of Facebook and Twitter in today's culture as well as the numerous technologies brought into the classroom to connect students to content.

Much of the discussion about literacy concepts thus far can be placed under an umbrella of functional literacy. The History of Literacy site (2010) suggests that, "a person is considered to be literate when s/he can read at a certain grade level (e.g., 6th grade), which may be measured by standardized tests" (para. 5). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2002), defines someone who is functionally literate as a person

> who can engage in all those activities in which literacy is required for effective function of his or her group and community and also for enabling him or her to continue to use reading, writing and calculation for his or her own and the community's development. (para. 1).

The section of this definition "…effective function of his or her group and community…" can be seen in today's social networks and the social groups and communities established therein. As time went on, "people sought methods by which they might communicate faster, easier, and better" by utilizing "the technologies of the time" (Jones-Kavalier & Flannigan, 2006, p. 8), leading to the present challenge of attempting to learn, integrate, and use present-day technologies in an effort to improve literacy, student engagement, student learning, and construct a common knowledge base.

Defining the Future: Literacy, Technology, Critical Thinking, and Pedagogy

Literacy in contemporary times has become an all-encompassing term that carries different meanings with different people and organizations based on their cultural or social perspectives. Consequently, educational organizations are at a crossroads of sorts dealing with "terms that often interact, overlap, or share common meanings" (Jones-Kavalier & Flannigan, 2006, p. 9) and within that context, Tyner (1998) calls for a more comprehensive look at literacy arguing that, "an examination of these literacies in isolation from one another does little to promote either clarity or utility" (p. 60). There is a high premium placed on literacy, and given its fluid nature and copious terms, is it possible to reach an agreement on the underlying principles (inherent in all perceptions of literacy) that guide teaching critical literacy rather than allow technology use to be the driving force behind pedagogy. Gee (2010) suggests that where technology and learning is unknown, "we can see that no real coherence in the area will occur if people in it do not achieve some degree of shared coherence and perspectives" (p. 5). Selfe (1987) likens trying to define literacy as a "connect- the-dots game" but sees an inherent hindrance in that individuals see only a few dots at a time and must experiment with different processes in order to connect them, which places "digital immigrant" teachers at a disadvantage.

Without a clear, definitive direction, "digital immigrant" faculty may find themselves struggling to develop technologically relevant material needed to challenge digital native students. What education is left with is a "classroom filled with digitally literate students being led by linear-thinking, technologically stymied instructors" (Jones-Kavalier & Flannigan, 2006, p. 8). Therefore, a shift in thinking needs to take place away from the "digital native debate and instead concentrate on enhancing our understandings of the

realities of technology use in contemporary society" (Salaway, 2009, p. 12), a society in which Prensky (2009), calls for "digital wisdom" suggesting that society begins to use technology to make us "not just smarter but truly wiser" (p. 705). Gee (2010) essentially sums up the discussion by pointing out that:

> the contemporary interest in digital media and learning needs a better name or label because we are concerned with more than just new technologies in any narrow sense. A new label would have to incorporate the themes of convergent media, production, participation, fluid group formation, complexity, and popular culture. (p. 14-15)

Hence, the struggle continues to incorporate a comprehensive definition of digital literacy that would aid teachers in their search to develop engaging and relevant coursework and utilize the digital tools necessary to construct knowledge in the classroom.

Literacy. Currently, much of the research on literacy proposes ways for developing 21st century literacy skills and integrating technology (Campbell, 2004; Gee, 2010; NCATE, 2001; Prensky, 2009; Selber, 2004; Selfe, 1999; Tan & Guo, 2009-2010) by first defining the term, then seeking the characteristics of literacy, calling for action in teacher preparation, and finally developing techniques to seamlessly blend technologies into the curriculum. However, therein lies the problem. There is a crossroads with literacy as the "digital natives" and "digital immigrants" come together and work to determine what is meant by literacy because students enter classrooms "tech savvy but not necessarily analytical about the impact of technology on their lives" (Gruber, 2010, p. 133). Gruber's point is the driving force behind the focus of this study and the difficulties that lie within it.

Gee (2010) discusses four particular areas of study that highlight the difficulty in researching the area of literacy and determining that elusive definition of literacy.

1. New literacy studies, which was an endeavor that proposed to study literacy (reading and writing) as a socioculutral achievement rather than a cognitive one.
2. Situated cognition studies, a contemporary approach to mind and learning that stresses the importance of experiences in the world to human thinking and problem solving and the ways in which these experiences are mediated by various tools and technologies.
3. New literacy studies (not to be confused with the one above) which was an area that studies new "literacies"—new types of literacy beyond print literacy—especially new digital literacies and literacy practices embedded in contemporary popular culture.
4. New media literacy studies, an area related to an older concern with media literacy regarding the ways in which people give meaning to and get meaning from various media. (p. 9-10)

Thus, the debate continues and others weighed in early in the process with their own particular insights into the issues surrounding technology. McLuhan (1994) points out that, "the 'message' of any medium or technology is the change of scale or pace or pattern that is introduced into human affairs" (p. 8). At this time, the scale and pace of technological change (the rapid growth of Facebook and Twitter and the flood of applications for SmartPhones) is so fast that it is difficult putting an exact finger on literacy.

While Gee (2010) supports the term "digital media and learning," he still draws attention to the tenuous nature of even that term:

> In many respects, the contemporary interest in digital media and learning needs a better name or label because we are concerned with more than just new technologies in any narrow sense, a new label would have to incorporate the themes of convergent media, production, participation, fluid group formation, complexity, and popular culture. (p. 14-15)

If McLuhan's (1994) comment, "the medium is the message"(p. 7) is taken into account, along with a discussion about the aforementioned numerous literacy terms and definitions, mixed in with the prolific advances of technologies, there is potential for a union of sorts for the perfect storm. McLuhan (1994) goes on to say that "the personal and social consequences of any medium – result from the new scale that is introduced into our affairs by each extension of ourselves – or by any new technology" (p. 7). Consequently, defining literacy – media, digital, computer, technological, or information – "is far from straightforward" and is "clearly more than a *functional* literacy (Buckingham, 2003, p. 36-37). What Buckingham (2003) and others (Gee, 2010; Selfe, 1999; Tyner, 1998; Yancey, 2009) see is that literacy, by any other name, not only includes the ability to use and interpret various media, but also involves a much broader critical or rhetorical awareness of it (p. 38).

Therefore, the evolution of literacy cannot be discussed without addressing three factors that are inexorably connected: the "act" of literacy-having the ability to decode the "squiggles" in a published book or word process a short story in a meaningful way, the "technology" of literacy-using a printing press to put squiggles on paper or using a

computer to create a web site, and the "pedagogy" of literacy-how best to teach literacy and technology and develop strategies on how to write, read and interpret various digital media. Plato's and Socrates' debate over the intrusion of print versus oral communication, did not stop with these intellectual giants but evolved into another debate about current technologies in the modern era as Tyner (1998) pointed out by stating how, "[Walter] Ong (1912-2003) diverged from his contemporaries, Mcluhan and Leavis, who believed that electronic media were a threat to print" (p. 56). The debate over how technologies influence the advancement of literacy, what is considered necessary to become literate, and having been taught the intellectual tools necessary for literacy will continue on into the future.

Technology. Regardless of the perception that exists concerning technologies, the fact remains that technology will never go away and only continue to advance. What is currently being debated is how the technologies influence education and how to access those technologies for educational purposes (Buckingham, 2003; Gee, 2010; Hammond & Manfra, 2009; Scardamalia & Bereiter, 2006; Tyner, 1998). Therefore, at the root of the debate over literacy competency lay the questions about what characterizes the nature of literacy and the role technology plays in determining those characteristics. Selfe (1999), highlights the struggle by pointing out that:

> The history of educators' involvement with the emergence of technological literacy shows a complicated parallel development. Educators are aware of the inequitable distribution of technology and the problems of access associated with a society—and an educational system—increasingly dependent on computers. On the other hand, they have increasingly adopted

> and supported one official version of technological literacy, often ignoring a range of other literacy practices and values in this country and, thus, contributing to an impoverished agenda of literacy education. (p. 64)

In contemporary society, the scope of technology and literacy encompasses numerous affiliations with institutions, technologies, and media. However, regardless of the affiliation, the task of preparing students for 21st century competence places the onus of that preparation squarely upon teachers' shoulders. Specifically, the task seems to fall on English/language arts teachers as the skills necessary for examining, developing, and analyzing the products of digital communication (written, video, visual, and electronic documents) are taught in English/Language Arts courses. In a National Council of Teachers of English (NCTE) policy brief, (2008) Kist (2005) noted the "need to prepare students for this world with problem solving, collaboration, and analysis – as well as skill with word processing, hypertext, LCDs, Web cams, digital streaming podcasts, Smartboards, and social networking software – [is] central to individual and community success" (p.1). Clearly, there is a need for faculty to remain up-to-date with technologies and instill critical thinking skills, because as new technologies begin to shape growing literacies, they provide more occasions for teachers at all levels to promote reading and writing in more varied and participatory contexts (21st Century Literacies, 2008, p. 14), thus helping develop much needed digital and literacy skills. Tyner (1998), reinforces the need for faculty to remain current by pointing out that:

> the use of technology for purposes of schooling is accelerating, and the introduction of systematic instructional technology offers relevant education a form of instruction [and] offers access to packaged education to vast

> numbers of people, and introduces a mediated, machine-to-person relationship into the learning equation that offers efficient transference of information/knowledge" (p. 47).

However, Tyner (1998) also advises that without first examining "social variables" (p. 50), faculty should be cautioned about the indiscriminate use of technology in the classroom as its use in this manner does little to further the goals of critical literacy.

Perhaps a cautionary note is warranted concerning the power of technology over students and the inclusion of technology as a tool in the classroom. Present technologies demand an appraisal of the entire educational system because the system has not fully adjusted to digital integration, perhaps because the "systems are comprised of instructors born during the analog age, who will never be as fluent with [technology] as their students because they will always retain, to some degree, a foothold or 'accents' to their past" (Prensky, 2001, p. 2). However, as faculty continue to move forward with their own learning, more and more "digital immigrants" are becoming more fluent with the technologies and are able to challenge technologically literate students. Nasah, DaCosta, Kinsell, and Seok (2010) found that while students have a good understanding of functional digital literacy, they "lacked a deep knowledge of the technologies themselves" (p. 533). Kvavik (2005) seconds this position as his research found that students know technology but "have less in-depth application knowledge or problem solving skills" (p. 7.6) and that "students appear to be slower developing adequate skills in using information technology in support of their academic activities, which limits technology's current value to the institution" (p. 7.17). Critical to student development is an educational system that

recognizes the need, not only to innovate with technology, but also to guide students toward greater critical analysis when using that technology.

As new technologies and media developed, critics (Bower, 2006; Bugeja, 2009; Gentile & Anderson, 2006; Keen, 2007; Knobel & Lankshear, 2002; McLuhan, 1994) denounced their merits believing the inclusion of technology or media might subvert young minds and be used for ill-gotten means; witnessed as far back as Plato's condemnation of writing. Dougherty (1996) commented that the "Internet's capacity to blur distinctions between the factual and the fanciful is, by virtue of the medium's growing prominence and the increasing fractiousness of our society, a troubling turn of events" (as cited in Tyner, 1998, p. 23). Tyner (1998) also noted that, "[t]elevised politics, dramatic representation, video games, internet chat rooms, and the evening news are all accused of using form over substance to sway media users" (p. 21). In his book *Cult of the Amateur,* Keen (2007) vilifies technology stating that today's Internet users:

> are creating an endless digital forest of mediocrity. For today's amateur monkeys can use their networked computers to publish everything from uninformed political commentary, to unseemly home videos, to embarrassingly amateurish music, to unreadable poems, review, essays and novels. (p. 5)

As recently as 2011, Nicholas Carr noted that what technologies seem to be doing is "chipping away at [his] capacity for concentration and contemplation" (p. 6).

Students need guidance in developing 21st century literacy skills beyond the functional literacy basics that include "technology skills for communication, investigating, accessing and using information, computing" (Holum & Gahala, 2001, para. 3) regardless of

the type of digital tools placed in front of faculty or other students. Therefore, it is incumbent upon faculty to rethink digital pedagogy to ensure proper, developmentally sound practices in the classroom and instill critical thinking skills into that pedagogy.

Critical Thinking. One essential component in the literacy debate professed by several researchers (Carr, 2011; Dewey, 1910; Gee, 2010; Prensky, 2008; & Sheridan & Rowsell, 2010) is the need to develop a new way of thinking and learning within the paradigm of technology integration in school settings. This study about critical technological literacy would be remiss if it did not include Dewey's work, *How We Think* (1910) because how students and faculty *think* about literacy and technology use is essential to establishing sound pedagogical practice in the classroom. Dewey begins the book with the most basic, yet perplexing question—What Is Thought? He asserts that thinking is "*that operation in which present facts suggest other facts (or truths) in such a way as to induce belief in the latter upon the ground or warrant of the former"* (p. 8-9), in essence, reflective thinking. Dewey sees thinking not as "a case of spontaneous combustion" (p. 12), but as "acquiring the attitude of suspended conclusion, and in mastering the various methods of searching for new materials to corroborate or to refute the first suggestions that occur" (p. 13). Of course, institutions and faculty, at all levels of education, want thinking, discerning students who are capable of reflective thought. Coffey (2009) takes the measure of reflective thought and expands on it by defining critical literacy as "the ability to read texts in an active, reflective manner" (p.1). Therefore, one can surmise that critical literacy should include reflective thought as well as other higher order thinking skills. The question facing faculty is how to develop students' minds so they are capable of reflective, critical thought.

Howard Gardner (2006), in his seminal work with multiple intelligences (MIs) posits five minds, which he feels "we *should* develop for the future" (p. 1). Similar to his MI theory, Gardner's five minds recognize a disparity inherent within all people —we do not all learn or think the same way—but asks us to think of the minds as something that can be fostered in schools (p. 4). Rosenberg (2010) argues that the evolution of technology has "made it essential for people to have the necessary skills to be able to communicate *through, with,* and *about* the new means" and that they are provided the skills necessary to negotiate and interpret the messages used in new technologies in order to make informed decisions (p. 7). Kellner (1998) also recognizes the "need to develop new literacies to meet the challenge of new technologies" (p. 103), literacies and educational practices that promote and "empower students to make education relevant to the demands of the present and future" (Kellner, 1998, p. 103).

Two such sites to help meet the demands of the 21st century student and cultivate these critical thinking minds is the undergraduate English classrooms and labs. Here students are afforded the opportunity to experience language in its diverse forms (written, oral, visual, and electronic) through the lens of technology and under the guidance of faculty who are knowledgeable in both genres. It is also here that students "begin to develop the requisite cognitive skills" necessary to "participate in the complexity of the academic community" (Duffelmeyer, 1999. p. 14) aided by the use of inclusive digital pedagogy.

Pedagogy. Recent scholarship (Gee, 2010; Jolls & Thoman, 2008; Jones-Kavalier & Flannigan, 2006; Prensky 2008; Tan & Guo, 2010; Tyner, 1998) recognizes the multiple layers of literacy and its ever-evolving nature. As previously mentioned, there are a

number of agencies and organizations that define literacy based on interchangeable determiners such as information literacy, critical literacy, digital, or media literacy. Because such a wide variety of definitions exist, confusion and misunderstanding about what constitutes a literate person occurs at many levels. Libraries may focus on accessing and using information while technology driven courses focus on using and maintaining competence with hardware and software. Given that the definition of literacy is such a moving target, these entities may support the concept of literacy but define and determine pedagogy in terms dictated by principles within their respective disciplines – a more functional, utilitarian use perhaps. For example, libraries and information technology uses the term information or computer literacy (Campbell, 2004).

What should lie at the core of literacy is a focus on "critical and creative thinking skills" that include "knowing how to identify key concepts, how to make connections between multiple ideas, how to ask pertinent questions, formulate a response, [and] identify fallacies" (Jolls & Thoman, 2008). Therefore, teachers need to understand these foundational characteristics of literacy and establish the pedagogy associated with teaching it. Kellner (1998) provides a definition of literacy that includes both the ability to acquire information through technical means and "refined reading, writing, and communicating abilities that involve heightened capacities for critically analyzing, interpreting, and processing print, image, sound, and multi-media material" (p. 116). Street (2003) and Gee (2010) reference the term "New Literacy Studies" that represented a "new tradition in considering the nature of literacy, focusing not so much on acquisition of skill, as in dominant approaches, but rather on what it means to think of literacy as a social perspective" (cited in Street, 2003). Yancey (2009) promotes and supports the movement

to redefine and establish pedagogical practices that provide opportunities to face what she sees as three challenges: "developing *new models of writing*; designing a *new curriculum* supporting those models; and creating *models for teaching* that curriculum" (p. 1). Is it any wonder that confusion abounds and teachers seem to lack direction when classrooms are filled with such a variety of philosophies when it comes to integrating technology literacy practice?

When Past and Present Collide: The Pedagogy of Expanding Literacy

Within the past 30 years the nature and development of technology has exploded. High school and college campuses possess an ever-growing number of technologies available to students, such as Smartboards, computer labs, laptops, iPad use, YouTube, and a multitude of available software to create, develop and manipulate discourse. However, while the technologies have expanded, teaching pedagogy with regard to existing technology has lagged. Researchers like Alverman (2004); Buckingham (2003); Gee (2010); Kist, (2009); Koehler, M. J. & Mishra, P. (2008); Rish and Caton (2009); and Sheridan & Rowsell, (2010) and have answered the call for proposing pedagogical solutions to the present convergence of technology and pedagogy.

21st Century Literacies. All the literature, up to this point in the chapter focused on literacy and what it meant to be information, computer, media, digital, or multiple literate. Schlechty (2001) distinguishes between illiteracy—the inability to "decode words on a written page" (p. 3) and functional literacy—those able to "read well enough to manage daily living and employment tasks beyond a basic level" (p. 3). What has been presented up to this point is a change in the perception of literacy from the basic ability to read and write into what Gee (2010) and Street (2003) describe as *New Literacy Studies*, Sheridan and

Rowsell (2010), term *Design Literacies*, Cope and Kalantzis, (2000) and Kellner, (1998), view as *Multiliteracies*, or *21st Century Literacies,* and Thoman and Jolls, (2008), describe as *Multiple Literacies*. As a result, what is left becomes a matter of sifting through the terms to reach a decision about what constitutes this new view of literacy as it relates to technologies and teaching. As teachers and students continue preparation for addressing this convergence of technology and pedagogy, a question that needs to be addressed is what literacies should teachers include in their pedagogy and what technologies should they include to address those literacies and prepare students for the 21st century.

Digital Literacy's Place in Education: Teaching for Understanding. The onus of literacy education and the addition of critical digital literacy appear to have fallen upon English faculty, specifically composition faculty at the undergraduate level in higher education. While the contributions and involvement of K-12 teachers is significant, literacy and in particular digital literacy, does not end with high school. Ritz (2009) posits that the mission of our profession is to expand technology courses to the university's general population in order to achieve technological literacy for all (p. 333). What all teachers strive for (it is hoped) is that students understand and learn the material provided in their classrooms. In order to teach for understanding, Gardner (1994) suggests that, "genuine understanding has been achieved if an individual proves able to apply knowledge in new situations, without applying such knowledge erroneously or inappropriately; and if her or she can do so spontaneously, without specific instruction to do so" (p. 200). Through no fault of teachers and faculty, many bad habits, such as texting during classes, sexting, or cyberbullying are acquired during formative years and an issue that may need to be addressed at a later time is the question of how developmentally ready children are for

certain technologies de jour. It is one thing to have access to technologies and another to know what to do with them. Tyner (1998) reinforces this idea harkening us back to Plato who found, "that using the technology of literacy was a relatively minor problem compared to what people did with the information that literacy made available to them" (p. 20). Advancing this thinking forward to more current times, Rosenberg (2010) points out that users of the Internet may feel a sense of empowerment; however, technology may also:

> lead to public rejection, humiliation, contempt, and oppression. Such harmful use of the Internet can be attributed to a lack of consciousness regarding how the Internet works, . . . how messages can be misconstrued, how images and sound can change the objectives of a message, etc. (p. 8)

Clearly, there should be (and to some degree there is) some governance or thought processes in place that prepare users to deal with potential difficulties. However, some students are just not ready for certain facets of technology and need guidance. Rosenberg (2010) supports this perception by stating that "people need to become Internet-literate" meaning "users need to have the necessary skills [to use the technology]. . . and that teachers have to prepare them to acquire such skills" (p. 8). According to Pearson and Young (2002) digital literacy is more about the capabilities to understand the technological world rather than to operate pieces of it (p. 21-22). In many cases, teachers must also be prepared to enter the digital realm, fully armed to inculcate understanding in students of all ages. Unfortunately, a problem exists in maintaining teacher proficiency with technology in order to prepare students.

As changes in contemporary literacy practices accelerate and converge, social agencies are attempting to incorporate them with a speed equal to their availability . . .

[however], in such a continuous change process, it is difficulty to say which agent drives the change: the communication technologies, the literacy practices, or the institutional need for renewal in response to larger, historical factors (Tyner, 1998, p. 16).

Prensky's, (2008) view on technology's place in education asks teachers to move away from the "old" pedagogy of the "Sage on the Stage" and toward the "Guide on the Side" (p. 1) to improve teaching for understanding. However, Prensky also sees difficulty with this as "[e]very teacher and administrator is, currently, somewhere on a continuum between the old and the new paradigms" but accepts the task of moving them "to the new pedagogy as quickly as possible" (p. 1). With this goal in mind Prensky (2008) advances potential pedagogy by stating that, "the role of technology in our classrooms is to support the new teaching paradigm" (p. 1) and teachers should adjust their practices to accommodate this paradigm. However, many teachers seem to elevate technology to the role of "sage on the stage." Therefore, teaching and learning for understanding must adapt to this constantly changing digital literacy landscape by changing basic attitudes towards technology's role in the classroom and students' thinking about how to use technology. The strengths of technology also act as barriers simply because they increase:

> the complexity of having to use different symbol systems, making them difficult to learn and use. [Therefore it comes as] no surprise that the introduction of digital technologies into the classroom further complicates the kinds of problems and issues teachers face. (Koehler & Mishra, 2008, p. 5-6)

In order for teachers to meet the need for a paradigm shift, they will need assistance. For current teachers, support should be in the form of workshops and other types of

institutional support, while future/preservice teachers will need better teacher education programs that foster new approaches to pedagogy related to teaching critical digital literacy. With support in place, faculty at all levels may help move students toward greater understanding, toward enhanced literacy, and toward attaining 21st century digital literacy skills.

Digital Literacy's Place in Education: Implications for Undergraduate English. Teaching 21st century technology skills and teaching those skills for proficiency not only needs to take place in the K-12 classroom, but they also need to be presented, modeled, and learned in undergraduate English courses. Access to technology does not translate into increased ability to use it. Access is not understanding, nor always ethical, and attention needs to be focused on the cognitive skills necessary to manage, integrate, evaluate, comprehend, and create information using technology (Succeeding in the 21st Century, 2003). Professors need to maintain competence through continued engagement with technology and understand the types of technologies they will use in their classrooms and the skills they will pass onto students. However, instructors' resistance to certain technology changes is not a new phenomenon as Selfe (1999) pointed out in the late 1990's stating that, "resistance to the effective integration of computers in the classrooms, for example, came from English teachers themselves" (p. 68). Hughes (2005) also suggests that there are many teachers "for whom the use of technologies for education is unfamiliar and, in some cases, a daunting prospect (p. 278). Therefore, a need exists for continued discussion about the types of digital literacy practices faculty wish to include and the core cognitive skills related to technology use that students need in order to be productive

members of an information-rich technology-based society (Succeeding in the 21st Century, 2003).

Buckingham (2003) points to one type of digital literacy and asks the questions that applies to nearly every technology faculty wish to employ —"Why media education?" (p. 5). His answer is that media and digital technologies are becoming so entrenched in the fabric of our lives that it is used to "define our identities" (p. 5). Most, if not all, teachers are aware of the vast number of people and businesses who subscribe to Facebook and Twitter as well as the massive number of students texting away before class and after class and realize how influential today's technologies are to our students. Since technology is so important to our students and culture, Buckingham (2003) suggests that integrating technology into education is essentially "making the curriculum relevant to children's lives" (p. 5). Yancy (2009) also indicates the need to develop theoretically informed pedagogies that respond to today's "Age of Composition" where students attain their literacy and learning through "extra social co-authorships" (p. 5). Supporting the need for improved dialogue about the challenges associated with digital literacy, Sheridan and Rowsell (2010) call for a way of thinking in which educators recognize that traditional pedagogies need to be modified to better integrate digital media (p. 103) and move toward pedagogies that recognize there are, as Yancey (2009) states, "multiple models of composing [which operate] simultaneously" (p. 7).

Therefore, if faculty are called upon to introduce new practices, recognize, and respond to issues and advancements related to technology's use, and maintain digital competence, as well as teach these competencies to students, teacher preparation and support should model those concepts and pedagogies. Policies that strengthen teacher

competence at all levels, especially in the use of digital technologies, should translate into students who are exposed to and prepared for the burdens of the 21st century because "the global economy and technological innovation demand that all students are " equipped with these skills (Miller, 2009, p. 12). In response to the clarion call for improved digital literacy for students and teacher proficiency in digital pedagogy, this study was guided by the TPACK framework as a focal point to begin discussions about how to develop best practices for competency in the 21st century classrooms.

Teacher Knowledge and Pedagogical Content Knowledge (PCK)

Given today's fast-paced advances in technology, the heavy influence of that technology on our culture, and the need to keep coursework relevant to students, what constitutes pedagogical, content knowledge, and literacy competency among students and faculty who use technology as a teaching and learning tool may be difficult to assess. However, the importance of establishing criteria to determine what characterizes the nature of teaching and the teaching of digital literacy is a necessary step for educational institutions to take, both for preservice and in-service teachers. All educators should be conscious, to varying degrees, of the convergence of technology, pedagogy, and content knowledge.

Shulman (1986) stated that "[t]he person who presumes to teach subject matter to children must demonstrate knowledge of that subject matter as a prerequisite to teaching" (p. 5). What then constitutes one's ability to "demonstrate knowledge" of technology? What level or degree of knowledge is necessary to demonstrate digital competency? What criteria are used to establish literacy in a digital world? Shulman (1986) briefly discussed and highlighted excerpts from tests that were administered to prospective teachers in the

1870's requiring them to demonstrate sufficient aptitude in specific subject matter in order to teach. If faculty aspire to infuse technology into their teaching practice and course content, what would Shulmam deem demonstrable knowledge and what skills are required by both teachers and students?

The crux of Shulman's (1986) position might be found in a reversal of George Bernard Shaw's infamous line—"He who can, does. He who cannot, teaches" (p. 1) to one that elevates teaching rather than denigrates it—"Those who can, do. Those who understand, teach" (p. 14). Between these two quotes lay Shulman's argument that preparing teachers involves both pedagogical and content knowledge (PCK) rather than simply a 1870's content/subject matter approach and a 1980's focus on an evaluation emphasizing "the assessment of capacity to teach" (p. 5). If the concept of faculty having both pedagogical and content knowledge is sound, how does the introduction of technology amend the basic discussion of literacy competence and the discussion surrounding critical digital literacy in today's advanced technological climate?

Teacher Knowledge and TPACK

Back in the 80's when Shulman was compiling his research, he may not have been able to see the upcoming explosion of technology and current trends present today. A number of researchers (Carr, 2011; Gee, 1999, 2010; Mishra & Koehler, 2006, 2009; Prensky, 2008, 2009; & Tyner, 1998) have theorized and composed articles and books about how society, and specifically education, manages the incursion of technology into course content and pedagogy. Various strategies and policies have been suggested about the implementation of technology, assessment of teachers' knowledge base, and the convergence of these ideas into a comprehensive, yet workable, set of procedures teaching

faculty may employ to best prepare students for 21st century challenges. Following Shulman's (1986) merger of content knowledge with pedagogy (PCK), Mishra and Koehler (2006) have expanded the model to include the influx and use of technology (TPACK), which "emphasizes the importance of helping teachers develop and apply integrated and interdependent understandings of technology, pedagogy, content, and context" (Harris, Mishra, & Koehler, 2009, p. 395-396). Figure 2.1 from the Handbook of Technological Pedagogical Content Knowledge for Educators (2008) shows the individual components of the TPACK framework and the convergence of each resulting in technological pedagogical content knowledge.

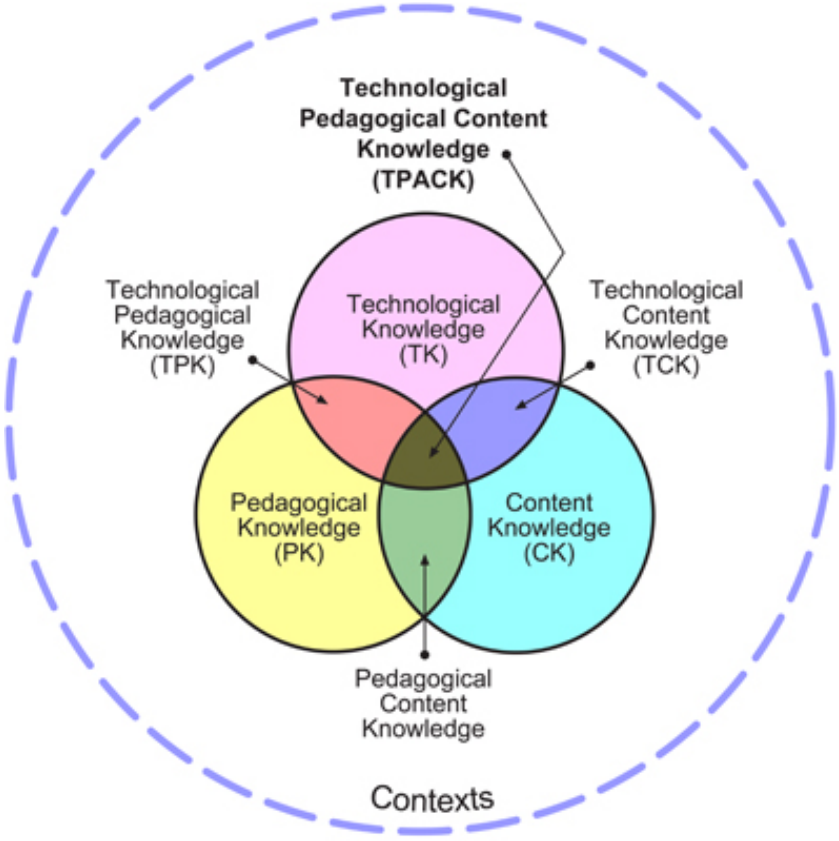

Figure 2.1: TPACK framework components

The following information from the Handbook of Technological Pedagogical Content Knowledge for Educators (2008) describes the individual components of Figure 2.1 that make up TPACK.

Content Knowledge (CK): "Content knowledge is knowledge about the actual subject matter that is to be learned or taught" (Shulman, 1986, p.13) and as described by Shulman includes "knowledge of concepts, theories, ideas, organizational framework, knowledge of evidence and proof, as well as established practices and approaches towards developing such knowledge" (p. 9).

Pedagogical Knowledge (PK): "Pedagogical knowledge is deep knowledge about the processes and practices or methods of teaching and learning and encompasses (among other things) overall educational purposes, values, and aims" (Shulman, 1986, p. 14).

Technology Knowledge (TK): This section is the most difficult to define because of the fluid nature and constant changes of technology. However, Koehler and Mishra (2008) posit that "there are certain ways of thinking about and working with technology that can apply to all technology tools" (p. 15). They line up their definition to that of fluency of information technology (FITness), which is linked with the Committee of Information Technology Literacy of the National Research Council (1999) in which "[t]hey argue that FITness goes beyond traditional notions of computer literacy to require that persons understand information technology broadly enough to apply it productively at work and in their everyday lives" . . . [and] "requires a deeper, more essential understanding and mastery of information technology" (p. 15).

Pedagogical Content Knowledge (PCK): "PCK covers the core business of teaching, learning, curriculum, assessment, and reporting such as the conditions that promote

learning and the links among curriculum, assessment and pedagogy" (Shulman, 1986, p. 14). Shulman points out that teachers transform subject matter for teaching and "occurs as the teacher interprets the subject matter, finds multiple ways to represent it, and adapts and tailors the instructional materials to alternative conceptions and students' prior knowledge" (p.9-10).

Technological Content Knowledge (TCK): Technology affords faculty access to multiple layers of information and media to create and establish any number of communication options. These affordances, if not properly employed can also restrict useful and meaningful communication and understanding. Therefore, TCK is defined "as an understanding of the manner in which technology and content influence and constrain one another" (Koehler & Mishra, 2008, p. 16). Koehler, and Mishra (2008) also point out that, teachers need "to understand which specific technologies are best suited for addressing subject matter learning in their domains and how the content dictates or perhaps even changes the technology—or vice versa" (p. 16).

Technological Pedagogical Knowledge (TPK): "Technological pedagogical knowledge is an understanding of how teaching and learning changes when particular technologies are used" and includes "getting a deeper understanding of the constraints and affordances of technologies and the disciplinary contexts within which they function" (Koehler & Mishra 2008, p. 16-17). Given that much of the current software was originally designed for business and not education, having TPK allows faculty to understand how content and technology blend into appropriate vehicles for the dissemination of developmentally appropriate course material.

Technological Pedagogical Content Knowledge (TPCK): Koehler, and Mishra (2008) further extend and modernize the PCK model stating that, "TPCK is the basis of effective teaching with technology and requires an understanding of the representation of concepts using technologies in constructive ways to teach content" (p. 17). Teachers are expected to blend the three concepts together in order to "develop fluency and cognitive flexibility not just in each of these key domains (T, P, and C) but also in the manner in which these domains interrelate, so that they can effect solutions that are sensitive to specific contexts" (Koehler, & Mishra, 2008, p. 18).

Having trained preservice teachers with the TPACK model and having the capabilities of developing and using TPACK in the classroom, faculty at all levels are afforded the opportunity to model the deep critical thinking that takes place behind decisions made for designing developmentally appropriate course work. If students see TPACK modeled, along with the deep thinking involved with technology use, are then given appropriate lessons to coincide with the modeled behavior, they may also learn how to develop critical digital literacy.

Critical Digital Literacy and Undergraduate English

A significant concern for teachers of all ages has been in how to develop strategies that will instill in all students the concept of critical thinking and its application to areas of study. Dewey (1910) challenged the concept of critical thinking as reflection, which is the "[d]emand for the solution of a perplexity" (p. 11) and an "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (p. 19). Positioning critical/reflective thinking within the classroom has been a focus of education for some

time and, with the advances in technology, this issue has become more essential. Gardner and Boix-Mansilla (1994) suggest that while school reform has a long history, their focus and latest reform asks the profession to "educate for understanding" (p. 212). While past students were "active" and "persistent" with printed, paper texts, current students are faced with a multitude of digital texts (Ezziane, 2007; Gee, 1999; Tan & Guo, 2009) yet, the present technology-driven culture, places unique demands on both faculty and students necessitating attention to critical thinking skills (Buckingham, 2003; Coffey, 2009; Dewey, 1910; Keen, 2007; Prensky, 2009) and critical technology application in terms of course content design. Hughes (2007) positions education:

> at a juncture in terms of technology use [and points out that] while education is poised for innovation that will allow students to engage in learning with technology . . . we still need to reflect on how to make those practices a reality in classrooms today. (p. 277-278)

The advent of digital technologies and their incursion into the classroom has thrust the issue of critical thinking and pedagogical efforts to attend to its teaching into the forefront of educational deliberations, hence the impetus for TPACK/TPCK.

Recent articles have advocated the use of TPACK/TPCK in various disciplines such as math (Groth, Spickler, Bergner, & Bardzell, 2009), online distance learning (Archambault & Crippen, 2009), and preservice teacher education (Schmidt, Baran, Thompson, Mishra, Koehler, & Shin, 2009), but little in the area of use in conjunction with undergraduate English courses at public universities. However, the area of critical thinking/technology use and English/Language Arts education has not been excluded (NCTE 2007; Tyner, 1998; & Yancey, 2009), though most information addresses K-12 teaching and learning. In support

of higher education's role in producing competent technologically literate students, Gruber (2010) points to researchers (Duffelmeyer, 2000; Gruber, 2007; Selber, 2004; & Selfe, 1999) who have "helped us conceptualize our roles as composition teachers who consider technological literacy as integral to a 21st century literate college population" (p. 133). Thus, having an understanding of the impact TPACK can have on classroom practice offers faculty a means to an end—having a conceptual framework that leads teachers and students toward enhanced critical digital literacy. Specifically, the role of English faculty will continue to expand as the demand for integrating digital literacy education with emergent technologies sweeps English faculty and their students into the 21st century.

In 2000, Hughes conceptualized a framework that "generated the TPCK concept specific to the English discipline, at that time referred to as: E(nglish)-TPCK" (as cited in Hughes & Scharber, 2008, p. 87). Hughes and Scharber (2008) describe how E-TPCK becomes embedded in English and English education practice and "how the possession of such knowledge impacts English classroom practices" (p. 89). The importance of this model and the opportunities it affords faculty cannot be overlooked.

Summary

This chapter provided an overview of the literature pertaining to questions surrounding the nature of literacy and critical digital literacy. The concepts were situated within an historical framework laying a foundation for an understanding of the unique challenges inherent in defining literacy. Literature specific to the concepts of technology, critical thinking and upcoming 21st century literacy skills was explored in order to widen the scope of literacy and bring the term up-to-date with current research and technology trends and demands. Although the literature in this section dealt mainly with broader

literacy concepts, literature dealing with digital literacy within an educational structure was available and allowed for the connection to a narrower interpretation about specific teaching practices.

The final section dealt with the theoretical TPACK framework, which guided the study. The conceptual framework of TPACK and E-TPCK explored the convergence of disparate teacher knowledge concepts into a coalesced idea that can be applied to teacher practice.

The following chapter explains the research design used for the study, the rationale for the methodological decisions and data collection methods.

CHAPTER 3:

Methodology

The purpose of this study was to understand how undergraduate English faculty at public four-year institutions experienced the evolutionary nature of literacy, the integration of technology into curriculum, and how they grappled with advances in technology and assimilated technology into their teaching philosophies and pedagogy. This chapter provides information on the philosophical assumptions of the research design, the qualitative research approach, information about the participant sample, data collection and analysis procedures, limitations, delimitations, and ethical considerations of the study.

The Qualitative Approach to Research

This study sought to understand the experiences of English faculty who teach undergraduate students in order to better understand and "investigate the quality of relationships, activities, situations, or materials" found within those experiences (Fraenkel & Wallen, 2006, p. 430). A qualitative approach also allowed me to "place emphasis on the *process* of research as flowing from philosophical assumptions, to worldviews and through a theoretical lens, and on to the procedures involved in studying social or human problems" (Creswell, 2009, p. 37) inherent in teaching undergraduate English. Fraenkel & Wallen 2006, characterize the nature of most qualitative research studies, which include:

1. Qualitative research investigates the quality of relationships, activities, situations, or materials.
2. The natural setting is a direct source of data, and the researcher is a key part of the process.

3. Qualitative data are collected in the form or words or pictures rather than numbers and content analysis is the primary method of data analysis.
4. Qualitative researchers are concerned with how things occur and the perspectives of the subjects.
5. Qualitative researchers allow the hypothesis emerge as the study develops.
6. How people make sense out of their lives is a major concern to qualitative researchers. (p. 444)

Through these features, qualitative research seeks a more holistic worldview, which affords researchers certain perspectives from the participants. Creswell (2009) described qualitative research as "a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem" or phenomenon (p. 4). Thus, through the study, I came to understand the meanings "digital immigrant" English faculty make of their experiences with integrating technology in their course content. Using a qualitative approach allowed the elements of the design to align together and guide the study's procedures. Those elements included epistemology, (how knowledge is acquired), theoretical perspective (a framework that defines a point of view), and methodology, which "governs our choice and use of methods" (Crotty, 1998, p. 2). Those methods are the "techniques and procedures used to gather and analyze data" (Crotty, 1998, p. 3).

Researcher's Role. My role in this qualitative study was to gather, record, interpret, and reflect on the data collected. I recognized my role as the primary research instrument for data collection and analysis and since understanding the experiences of the participants was the goal of the study, Merriam (2002) posits that the human instrument provides the ideal means for collecting and analyzing data (p. 5). Merriam also situated the researcher's

positionality as a "critical self-reflection by the researcher regarding assumptions, worldview, biases, theoretical orientation, and relationship to the study that may affect the investigation (p. 31).

Moustakas (1994) asked "investigators to set aside their experiences, as much as possible, to take a fresh perspective toward the phenomenon under examination . . . as if or the first time" (p. 34). Additionally, Creswell (2007) asked researchers to essentially set aside preconceived notions, past experiences and influences they may have had as they enter the examination. This concept of "bracketing" (Creswell, 2007) out the researchers' own experiences and preconceived notions allowed for a truer summation of the participants' experiences.

I attempted to "bracket" out any assumptions and experiences I may have or have had during the research process, but I entered this study with a distinctive position and perspective. I am currently teaching undergraduate English at an institution that emphasizes technology use in the classroom. In addition, I have been an English teacher for 28 years, at various levels, and have been involved with digital technology since the 80's, making my interest in exploring the experiences and perspectives of others who are in a similar position appealing.

Epistemology: Constructivism. The selection of constructivism as an epistemology was appropriate for this study for several reasons. The constructivist approach lies within the Grounded Theory Research framework and allowed for the need to "explain how people are experiencing a phenomenon" (Creswell, 2007, p. 66). Thus, through the experience of a phenomenon, "meaning [comes] from the views of the participants" (Creswell, 2009, p.16) and that meaning "is not discovered, but constructed" (Crotty, 1998,

p.7) about that experience. Crotty (1998) pointed out that constructivism places emphasis on " the meaning-making of the individual mind" (p. 58). In other words, learning takes place by piecing new information together with what is already known.

Therefore, by situating research within this epistemological foundation, meaning was constructed and shared within the context of interviews by the researcher and the faculty who mentally constructed meaning through their experiences as teachers of undergraduate English students in four-year public universities.

Theoretical Perspective: Interpretivism. According to Salthouse (1991), most researchers "rely on some kind of organizational scheme to provide a framework within which results" may be interpreted. The perspective of interpretivism was used in this study to "interpret the meanings and actions of [participants] according to their own subjective frame of reference" (Williams, 2000, p. 210). Crotty (1998) explained how "the philosophical stance lies behind [my] chosen methodology" as I attempted to explain how it provided a context for the process and grounds its logic and criteria (p. 7). Interpretivism, as a theoretical perspective, supported this study because participants' knowledge and meaning were logically constructed through the interpretations of their experiences as faculty members teaching undergraduate English courses at public four-year universities.

Methodology: Phenomenology. This study's guiding methodology came from phenomenology, which "begins with the experience of the individual and develops this in a reflexive form" (Flick, von Kardorff, & Steinke, 2004, p. 68) and "collecting data from several persons who have experienced the phenomenon" (Creswell, 2007, p. 60). This methodology was deemed appropriate because the reflective thinking and ascribed meaning to the experiences of the participants were essential in understanding what it is

like to be a "digital immigrant" teaching current undergraduate English "digital natives"—to "gain some insight into the world of [my] participants and to describe their perceptions and reactions" (Fraenkel & Wallen, 2006, p. 436).

The goal of phenomenology is to "focus on describing what all participants have in common as they experiences a phenomenon" (Creswell, 2007, p. 57-58). Therefore, the purpose of the study was to understand the thoughts, changing teaching patterns and pedagogy, and the experiences of the participant faculty. Thus, using phenomenology was appropriate because it "requires us to engage with phenomena in our world and make sense of them directly and immediately" (Crotty, 1998, p. 79).

When using a phenomenological approach, Fraenkel & Wallen, (2006) suggest that researchers "search for the essence of an experience" which, is "the defining characteristic—of phenomenological research" and those who conduct phenomenological studies "search for the 'essential structure' of a single phenomenon by interviewing, in depth, a number of individuals who have experience the phenomenon" (p. 437). In order to better understand these experiences and the role played by the participants, I relied upon personal interviews. Gall, Borg, and Gall (1996) stated that the "major advantage of interviews is their adaptability,"(p. 289) which allowed me to extract "the meanings that participants in the . . . process assigned to themselves and what they were doing" (LeCompte, Millroy, & Preissle, 1992, p. 850). Through the interviews, I was able to garner some insight into the participants' reflective nature, pedagogical opinions, educational goals, and personal experiences.

This study investigated the experiences of the "digital immigrant" English faculty interviewed and, from analysis of the data, became familiar with their experiences dealing with the evolution and integration of technology in their English courses.

Data Sources and Participants

In this study, I explored the nature of critical digital literacy within the boundaries of the personal, pedagogical, and professional experiences of "digital immigrant" faculty members currently teaching undergraduate English courses at four-year public universities. Full-time faculty members currently teaching English courses were purposefully selected for the study. Bloomberg and Volpe (2008) assert that the "logic of purposeful sampling lies in selecting information-rich cases, with the understanding of the phenomenon under investigation [and] the participants' ability to provide information about themselves and their setting" (p. 69).

After receiving permission from Drake's Institutional Review Board (IRB), I contacted potential participants via a recruitment email to garner interest in participating in the study and gather background information.

In the spring of 2011, I contacted English faculty members who would be considered "digital immigrants" presently teaching at three Midwest universities. From those contacts, I selected six participants, two from each university, each of whom has experience teaching some form of undergraduate composition/writing courses and uses technology as part of their pedagogy. I started with six participants and would have increased my sample size had I not reached data saturation. Jones, Armino, and Torres (2006) note that sample size for a qualitative study is dependent upon reaching data

saturation in which the interviewer no longer garners any new information on the phenomenon of interest by adding additional participants.

Data Collection

Data were collected through a recruitment email, interviews and selected documents such as curriculum vitae, syllabi, and assignments. My experience as a faculty member teaching undergraduate English writing courses proved useful in gaining and building rapport with the participants and allowed for richer more in-depth questions during the interviews and subsequent follow-up questions.

Interviews

In order to obtain the in-depth data necessary to adequately examine the experiences of the participants, each participant took part in three semi-structured interviews. The first two interviews were conducted face-to-face and on-site at the participants' respective university. According to Gall, Borg, & Gall (1996), the "major advantage of interviews is their adaptability" and allowance for the type of probing questions necessary to delve deeper into responses and get the opinions and feelings of the participants (p. 289). Seidman (1998) views "[i]nterviewing . . . [as] a basic mode of inquiry" (p. 2) and, the purposeful use of interviews for this study allows the interviewer to understand the "experience of other people and the meaning they make of that experience" (Seidman, 1998, p. 3). If the desire is to gain perspective and understanding of participant's experiences:

> [t]reating interviewing as a social encounter in which knowledge is constructed suggests the possibility that the interview is not merely a neutral conduit or source of distortion, but is instead a site of, and occasion for,

> producing reportable knowledge itself. (Holstein & Gubrium, (1999), p. 106).

Seidman (1998) recommended that interviews be spaced three days to a week apart, but recognized that this is not always possible and the schedule is dependent on the amount of time each participant had available. As long as a specific structure is maintained that allows participants to reconstruct and reflect upon their experience within the context of their lives, alterations to the spacing of interviews are flexible (p. 14-15).

Prior to the first interview session, participants were made aware of research procedures and confidentiality procedures to ensure they understood their rights as participants (Appendix B). The first two interviews began with a set of pre-planned questions (Appendix C) designed to "build upon and explore . . . participants' responses" in order to have each participant "reconstruct his or her experience with the topic under study" (Seidman, 1998, p. 9). The third interview was a member check interview conducted via email. Dolbeare and Schuman (1982, as cited in Seidman, 1998) suggested a three interview series that "allows the interviewer and participant to plumb the experience and place it in context" (p. 11).

Based on this advice, the goal for each interview follows:

Interview one: focused on teaching history and familiarity with technology – I sought information regarding the participants' past and present teaching experiences related to the topic. I asked questions about the participants' professional, educational, and personal experiences related to their use and familiarity with critical technology literacy.

Interview two: Details of experience – The purpose of this interview was to focus on specific details of the participants' present teaching experiences related to the topic of critical

digital literacy. Interviews sought information regarding their daily professional experiences and I requested copies of syllabi and other material related to course content. *Interview three – Member check:* Reflection on the meaning and future of TPACK- In the final meeting, participants were asked to reflect on their teaching experiences and use of technology.

Building Rapport

Prior to conducting the in-person interviews, I called each participant in order to set up the first interview, inform them of the interview protocol to be used, ensure that "they possessed the desired information and [were] willing to answer the questions"(Fraenkel & Wallen, 2006, p. 402-403), and respond to any questions they might have about the process. The prior email established some degree of rapport and provided some background information about the study. The telephone call permitted another degree of rapport building by putting a voice to the email. The process of building rapport was essential to the interview procedure in order to establish trust and amass the most robust information possible. Once rapport had been established, it must be sustained. Creswell, (2007), maintains that interviewers "stay to the questions, complete the interview within the time specified, . . . be respectful and courteous, and offer few questions and advice [and to remember that] "a good interviewer is a good listener" (p. 134). My teaching history provided the ethos for developing rapport and credibility among the participants and adherence to my teaching philosophy of using the Socratic method of questioning assisted in gathering appropriate and meaningful data.

Document Analysis

While interviews were the main source of data collection, there were other forms of

supplemental data that allowed me to triangulate the data to ensure Goodness and Trustworthiness (internal validity). Merriam (2002) noted that collecting multiple forms of data allowed the researcher to check what is said in the interview against "what you observe in a field visit or what you read or see in documents or artifacts relevant to the investigation" (p. 25). For this portion of the study, I asked for and received several selected documents such as: curriculum vitae, syllabi, and assignments related to critical digital literacy and teaching with technology. One participant provided an entire book he used in class that contained content and assignments.

Collecting this type of data permitted greater insight into the types of background experiences faculty members had with technology and writing and to use as a guide for formulating interview questions. Vitae provided teaching background, experience, and research interests. Syllabi provided an outline of material presented during a course and a direction for the coursework. Assignments provided the actual artifacts faculty make available to students for developing critical digital literacy. Collection of data such as this "goes beyond typical observation and interviews . . . [to] create reader interest . . . and can capture useful information that observations and interviews may miss" (Creswell, 2009, p. 181).

Reflective Journal

Another method for organizing data was to provide a record of how I arrived at my results through a reflective journal. Recording and analyzing my thoughts in a journal (digital and print) served as an "audit trail [which] described in detail how data were collected, how categories were derived, and how decisions were made throughout the inquiry" (Merriam, 2002. p. 27). Merriam (2002) also points out that what went into the

journal were my "reflections, questions, and decisions on the problems, issues, ideas" encountered in data collection (p. 27). The journal served as a physical manifestation of the thought process during the course of the interviews and aided in formulating follow-up questions, data collection, and data analysis.

Data Analysis

In keeping with phenomenological underpinnings of this study, analysis of data sought to establish "some commonality to the perceptions that human beings have" and discover the "essence" of the shared experience by "studying multiple perceptions of the phenomenon" (Fraenkel & Wallen, 2006, p. 437). Kvale (1996) points out that there is a "unity of content and method, [where] both the interview and the conception of learning [experienced by the participants] were based on a phenomenological understanding of the phenomenon investigated as an intentional meaningful activity in the daily life of the subject" (p. 196). Analysis of information derived from the recruitment email, information collected from interviews, as well as documents such as syllabi and assignments, aided in describing the shared phenomena of the participants.

While the goal of phenomenology is to interpret and describe the experiences of the participants in rich detail, it was imperative to "bracket" (Moustakas, 1994) out any personal experiences to the collected data. Through this bracketing process, "the everyday understandings, judgments, and knowings are set aside, and the phenomena are revisited" (Moustakas, 1994, p. 33). My experiences teaching undergraduate English made me aware of potential personal reactions to the data, and "only by recognizing that interaction and affirming its possibilities can interviewers use their skills to minimize the distortion" (Seidman, 1998, p.16-17). Here is where the reflective journal played a vital role as I

collected and reflected on the data. I used the journal to separate my personal reactions from what was learned through the initial and subsequent interviews.

I also used the content analysis procedures outlined by Gall, Borg, and Gall (1996) to examine frequency, types, patterns, trends, and themes of technology integration and use. Analysis of the data yielded patterns, trends, and themes of the participants' developmental experiences with technology and integration and use in their classrooms, and the type of syllabi developed, as well as assignments, activities, and practices employed. I also compared perceptions of the nature of critical digital literacy and reported on how participants regarded the goal of critical digital literacy and critical thinking as a potentially successful means of course preparation. These emergent patterns and themes were coded to assist in drawing out the shared experiences.

Creswell (2007) suggests researchers begin with open coding, "coding the data or its major categories of information" (p. 64). In the coding process, data were analyzed for patterns and organized into meaningful groups and coded as trends and themes emerged. Open coding, "reading the data line-by-line without using predetermined codes"(Esterberg, 2002, p. 158) allows the researcher to view the data in a truer, more natural state and realize "major categories of information" from which major themes should emerge (Creswell, 2007, p. 64). After the open coding process, the next step was to conduct focused coding through which the open codes were further reduced and organized into themes (Esterberg, 2002). Through the data analysis, I came to understand the major emergent themes representing the shared experiences of the participants. Five themes surfaced after analysis, coding, and organizing the data and those findings are presented in Chapter five.

Goodness and Trustworthiness

In order to insure appropriate levels of rigor and quality in this phenomenological study the constructs of validity and reliability were supplanted with the concepts of goodness and trustworthiness. While all four terms sought the same outcome, Lincoln and Guba (1985), posit that for:

> validity/credibility, they urge qualitative researchers to be in the setting for a long period of time (prolonged engagement); share data and interpretations with participants (member checks); triangulate by gathering data from multiple sources, through multiple methods, and using multiple theoretical lenses; and discuss their emergent findings with critical friends to endure that analyses are grounded in the data (peer debriefing) (as cited in Marshall & Rossman, 2011, p. 40).

Merriam (2002), also states that a trustworthy study employs "triangulation, member checks, [and] the use of rich, thick description" (p. 30). The following sections describe the strategies I used to ensure a good and trustworthy design (Merriam, 2002, Lincoln & Guba, 1985).

Triangulation of Data. Goodness and trustworthiness was supported through the collection of multiple data sources such as interviews and document analysis; for example, "what someone tells you in an interview can be checked against what you observe in a field visit or what you read or see in documents or artifacts" (Merriam, 2002, p. 25). Collecting robust data from varied means (triangulation) is "a principle strategy to ensure for validity and reliability" (Merriam, 2002, p. 26).

My primary source of data were from the transcripts garnered from the one-on-one interviews with participants, and three forms of document types for analysis (vitae, syllabi, and assignments), which provided context for questions, and follow-up interviews. Resultant thinking and projections (found in the reflective journal) also afforded a deeper, richer understanding of the participants' experiences and the phenomena under study.

Member checks. Another suggested method to be used to validate a qualitative study is member checks. According to Creswell (2009) member checks are used to "determine the accuracy of the qualitative findings through taking the final report or specific descriptions or themes back to participants and determining whether these participants feel that they are accurate" (p. 191). Member checks are attained by sending participants comprehensive profiles, interview transcripts and interpreted information (assignments and syllabi). Participants were provided access to the material and asked to comment and/or approve on the items. Allowing access to the material ensured a truer more accurate representation of the participants' experiences "and better capture their perspectives" (Merriam, 2002, p. 26).

Audit trail. Another device used to improve the reliability of the study was to make use of an audit trail. Merriam (2002) describes an audit trail as the "explanation of the methods of the study, how the sample was selected, how the data were collected and analyzed, and how validity and reliability were addressed" (p. 21). One means used in the audit trail was to take notes from the audio recordings and listen for any nuances or tones from the participants and then annotate the transcripts to highlight relevant and irrelevant information, start the coding process and begin categorizing information. The audit trail also included notations and tangential questions during the interview process. The audit

trail helped me peel back the layers of data to uncover the emergent themes and reflect on the notes and ideas gathered over the course of the data collection.

Reflective Journal. Through the use of the reflective journal, I was able to categorize data and reflect on specific decisions about the data collected. The journal allowed me to compile detailed notes, bracket my thought process to assist in keeping the proper distance from the subject at hand and aid in reducing bias, as well as assist in preparation for upcoming interviews and future reflection.

Delimitations of the Study

In a qualitative study Creswell (2009), suggests that delimitations "help to further define the parameters of the research study" (p. 113). This study investigated the experiences of "digital immigrant" faculty who teach undergraduate English courses in four-year public universities. The sample was delimited to Midwest four-year universities. Another consideration was the size of the university selected. Few large population centers exist in the Midwest and the culture and social norms of the Midwest could differ from those institutions located on the East and West coasts. Further boundaries were established by selecting only undergraduate "digital immigrant" English faculty with emphasis placed on teaching with technology. Because each English department is unique, faculty may have teaching experiences differing from other institutions, and each department has its own institutional culture as well as other unknown factors; it is not known if findings or subsequent results would be applicable to other, like faculty.

Limitations of the Study

This study had several limitations two of which are the selection of the participants and my history and experience as a faculty member teaching undergraduate English

courses and using technology. I used a purposeful sample (Gall, Borg, & Gall 1996) because the study participants "suit the purposes of the study…[and] are likely to be 'information-rich' with respect to the study. [However,] purposeful sampling is not designed to achieve population validity. The intent was to achieve an in-depth understanding of selected individuals" (218). As teachers of undergraduate students, these faculty members may, in some ways, set themselves apart from other faculty. That separation may be in the form of teaching styles, extent to which they use technology, or pedagogical practices.

My experience may influence my interpretation of the data and, thus, the outcome of the study. However, through the use of the reflective journal and bracketing, I hoped to reduce or eliminate potential unwanted or unwarranted influence. Because of my experiences in this area, I possess a distinctive advantage interpreting the data collected and will be able to detect the subtle nuances that were present during the interviews.

Ethical Considerations

In order to further insure the goodness and trustworthiness and produce a "good" qualitative study, ethical considerations were taken into account "and lies with the individual investigator" (Merriam, 2002, p. 30). Ethical considerations started with human subjects approval from the Institutional Review Board (IRB) at Drake University. After approval was granted, I contacted potential participants through a recruitment email, which briefly outlined the intent of the study and sought consent for participation in the study. Ethical considerations included:

- Information obtained and used in the research study will be read by the participants
- Confidentiality will be maintained throughout the study

- Participation was voluntary and participants were able to withdraw at any time and data would have been returned to the participant upon request
- Participants will receive a copy of the final study
- Social and professional risk factors were very low

Summary

This chapter outlined the methods and methodology for the study and addressed the rationale behind methodological decisions contained therein. The following chapter makes use of the TPACK framework to provide in-depth descriptions of participant profiles necessary for a phenomenological study.

CHAPTER 4:

Participant Profiles

Founded on prior established criteria for participant selection, six individuals were selected for a series of three interviews. The participants represent a cross section of "digital immigrant" English professors currently teaching undergraduate courses at four-year public universities in the Midwest. Following are participant profiles and demographics as a way of introduction and to provide background on each participant from whom data were collected. Furthermore, in keeping with the phenomenological approach (Moustakas, 1994) guiding the study, the profiles are not intended to detail the specifics of each person's life, but display the shared circumstances and common experiences that brought these individuals to their present positions at their respective institutions to teach undergraduate English.

Based on the interview structure and designated questions, each profile first describes each participant's background and career history. The profiles then describe teaching experiences with technology through the lens of the TPACK model which covers the following three areas: *content knowledge* – educational background and past and present teaching, *pedagogy* – influences on teaching and the development of their pedagogy over the years, *technology* – how they adapted to the digital world, their experiences with technology, and subsequent influences on current pedagogy and their views on approaches to teaching critical digital literacy.

Furthermore, the institutional settings from which each participant is a member is described to provide additional context for the participants in this study.

Composite Profile of Participants

Table 4.1 below outlines the basic demographics of each participant with corresponding information about their current positions and research interests. Pseudonyms have been chosen for each participant as well as the participants' institutions.

Table 4.1

Participant Demographics

Name	Degree/Year Awarded	University	Sex	Interest in Teaching and Research	Years teaching undergraduates
Diane	PhD/1996	University A	F	Mentoring beginning teachers; Young adult lit; Composition pedagogy; multimodal pedagogy and assessment	16
Charles	MA/2001	University A	M	Writing center and program theory and practice; Fiction; Classical and contemporary rhetoric; Critical pedagogy	11
Abby	PhD/1971	University B	F	New media poetics and pedagogy; 20th century experimental writing; Modern and contemporary poetry and poetics	41
Brad	PhD/1978	University B	M	Science fiction; Electronic media/hypertext theory; Postmodernism; 20th century fiction	34
Joshua	EdD/1983	University C	M	English education; Composition pedagogy; Creative nonfiction	29
Randy	MA/2001	University C	M	English education; Online teaching and learning	10

Setting

The setting for this study focused on six participants, who based on Prensky (2006), would be identified as "digital immigrants" teaching undergraduate English courses at three public institutions of higher education located in the Midwest.

University Profiles. Three universities in the Midwest were visited to conduct interviews with the participants. Following is a brief description of each of these institutions.

University A. University A is a four-year university with nationally and internationally recognized undergraduate and graduate programs and an enrollment of approximately 28,000 students, the majority of whom are undergraduates attending full-time. The university was established in the 1800's and is recognized for its focus on science and technology. The university's students come from all 50 states and 110 countries.

University B. University B is a major national research university composed of 11 colleges, the largest of which is Liberal Arts and Sciences. Approximately 30,000 students attend, the majority of whom are undergraduates. Fifty-five percent of the students are from the home state and an international enrollment consisting of 10% of the student population. The university has an award-winning program in writing and the arts.

University C. University C is a smaller liberal arts university established in the 1800's and offers 110 undergraduate majors, 40 master's degree programs and two doctoral degree programs to approximately 13,000 students. The majority of students are undergraduates and residents of the home state. The university was established as a teacher training institution with an emphasis on art and art education. Adding to the university's reputation is being nationally recognized as one of the best regional

universities in the Midwest with a celebrated MBA through its College of Business.

Participant Profiles

Following are profiles of the participants and their respective institutions: Diane and Charles currently at University A, Brad and Abby at University B, and Joshua and Randy at University C.

Brad

Content Knowledge: The Early Years. Brad followed the conventional educational track attaining his PhD in 1978. His vitae is awash with varied experiences ranging from the traditional scholarship consisting of committee work, publishing articles and books to the more non-traditional multi-media/electronic publications, consulting, and TV series all based around his interest in technology and teaching English. During the interviews, Brad frequently referenced authors, book titles, and colleagues, both at his home institution and colleagues and sources from other universities throughout the country. He consistently wove in his teaching with his early and storied attachment to technology, which dates back to the 1980's. In the early 90's, he was part of the first digital classroom in Iowa that linked 24 computers and focused on creating multi-media artifacts to be put on the web. Brad shared:

> I taught that course several years, finally moved it out of the Info Arcade and as the Web got more developed by 1995-'96 somewhere in there we were putting all of the projects on the Web. And my initial experience was I got a lot of students who were incredibly motivated by that. I mean if you remember back '95-'96 the Web was still pretty exciting, pretty new stuff.

> We were doing all the html coding ourselves; we weren't using any type of editor or anything.

In 1994, as a member of the English department at University B, Brad received a grant in order to establish multimedia stations for self-paced tutorial work for a literature class. As recently as 2008, Brad developed a multimedia/electronic lecture series dealing with writing.

He has a long and involved history with English and technology and continues to demonstrate his commitment to undergraduate education by currently serving as Director of a General Education Literature Program.

Pedagogy: What Characterizes Teaching of Critical Thinking/Literacy. Brad's early involvement with technology and undergraduate education has led him to develop his perspective on critical thinking. The implication garnered from his answers indicated that his teaching has reflected a critical/rhetorical approach for quite some time. However, because of his close ties to technology so early in his career, he found it difficult to separate one from the other. When Brad talks about critical thinking, he stated that:

> I am actually thinking about questioning and asking the next question. And unfortunately, I think that's where technology breaks down in that it is easy not to question the source that you are working with. It is easy to skim over the surface and to connect to other bits of information. It is not as mandatory that you ask, how good is this information? I just think of critical thinking as always questioning the source, questioning all of the rhetorical aspects, what kind of persona is something projecting, what kind of purpose does it have, what are the obvious slants in what it's doing, what is the argument.

Brad's analysis of critical thinking mirrors the thoughts of many scholars (Carr, 2011; Dewey, 1910; Gee, 2010; Prensky, 2008), yet also contextualizes his history with technology by comparing the ability or inability of technology to foster a deep relationship with the student and pointing out that:

> I'm not sure that the Web encourages that kind of interrogation of information in the same way that older knowledge sources do . . . it was a little bit easier to ask for that kind of analysis before the information became so very attractive with graphics, with the ability to link to other things, with just all kinds of bells and whistles that we get distracted by. (Brad)

Brad also acknowledged that in terms of his teaching critical thinking to undergraduates, he stresses "thematisizing" meaning that "when I'm teaching my post-modern fiction class, it means that I'm really pushing a series of central themes . . . and encouraging my students to relate anything and everything to those scenes." However, in order to accomplish that goal, Brad employs a number of techniques offering students opportunities to conceptualize critical thinking:

> You know, and it kind of fits in with all of the pop songs and everything else that goes there and it gets to be a little bit harder to convince them that this stuff is just pleasurable and it is funny and it's entertaining but to get them to realize that it also is an opportunity or challenge for critical thinking on their part for making connections to the more serious aspects of what we are doing.

Technology: Approaches to Critical Digital Literacy. There are a number of adjustments that Brad has made to his pedagogy over the years as technology advances

were made. His early work dealt with students having to read books which provided them a chance to "slow down the brain" and they "had time to question what you read" because "you almost had to do that to find where you were going to go next and now it's just a mouse over and a click."

When he was using literary texts, he noted that, "we take what's in the text and always our interest was the text as an object for study. Not necessarily hermetically sealed off from other things but it is the primary object of study." Focusing on that literary text allowed for more in-depth analysis.

Brad's earlier remark about how everything is just a mouse click away brings to light another phase of how he made adjustments to technology's influence and how he redefines how he sees technology:

> the definition that I use of -- the seat of the pants definition that I use for post-modernism is the culture of the easy edit. The idea that technology makes anything easier and that technology has really no limits. That sooner or later we can – you know, in the same way that the microwave lets us speed up time to cook and it used to be that the VCR and now the DVD and things like that let us speed up, manipulate time there. I'm talking a very superficial sensory sense to the extent that genetic manipulation gives us the sense we can now manipulate the body. To the extent that almost anything looks like there's going to be a technology that will edit it.

Brad's recognizes that his students are just a mouse click away from having their attention diverted away from potentially analyzing a text because of an imbedded link leading to new information. However, he thinks there is more "depth and breadth of richness to what we

give students." Therein lies another challenge to teaching critical digital literacy and Brad's response to this is:

> I would say there's an exciting breadth and the challenge is to make sure that the breadth doesn't stay just on the surface on connecting. You know, just some buzzwords and things like that to actually push into the ideas underlying it and to question the ideas. And that really takes slowing students down some.

Even though Brad finds it necessary to adjust his teaching and slow students down to be more engaged with the text, he finds that that "it's easier to teach now because I have so many more resources that I can call upon in the classroom." It is also important that he models the critical thinking process for his students by not only finding and using interesting digital avenues, but continuing to press the issue of deep rhetorical thought.

> When I go into a classroom . . . I'll go to YouTube for something . . . and I find the Othello rap. And I will bring that into the classroom and for me, I'm really interested in what the rap for all of its entertainment value and all of its superficial, you know, kind of cheesy aspect, what it gets right. I mean, you know, because it becomes a kind of adaptation or interpretation. You know, and it kind of fits in with all of the pop songs and everything else that goes there and it gets to be a little bit harder to convince them that this stuff is just pleasurable and it is funny and it's entertaining but to get them to realize that it also is an opportunity or challenge for critical thinking on their part for making connections to the more serious aspects of what we are doing.

Brad follows that comment with an assessment of how some resources and information are not legitimate, not "credentialized." Brad shares that the credentials of the source:

> don't stand up to the people we used to think of, you know, say a New York Times columnist or something like that." So in one sense critical thinking is way more important now because rather than the credential – rather than there being a kind of institutional credentializing that we can count on, it's even more important that our students do it for themselves.

Brad realizes that with our present technology and the way we use it, there is less authoritative, legitimized support behind the resources and information available to students. He noted that, "pronouncements from so-called authorities or experts have been diminished in their impact and value," forcing teachers to carry the mantle of authority into the classroom and emphasizing the importance of "critical analysis and critical views of text and plays and things." Brad goes on to reinforce this position when he stated that:

> I'm trying to bring the technologies with which they're way more familiar than I am into the classroom and I'm trying to get them to realize that they still have a critical obligation to examine, to question, to interrogate that technology as opposed to just, you know, breathe it in.

Therefore, the importance of maintaining a pedagogy that includes a critical approach to teaching is as important as adjusting and adapting to technology.

Charles

Content Knowledge: The Early Years. Charles has considerable experience in a number of writing genres based on past employment. He received his BA in English in 1997 and a Master's in Composition and Rhetoric in 2001with specializations in ESL, business

and technical writing, creative writing, and program development. Charles noted that he received experience outside of education in one capacity as a chemist where he, "got a lot of background writing in that sort of thing, report writing, standard operating procedures for chemistry, experiments and so on." Other non-education employment afforded him with a unique perspective on communication across the curriculum and provided extensive content knowledge in a number of areas beginning with his involvement with tutoring and writing center administration starting in 1988. Charles was recently the director of a writing and media center at University A and currently works with and teaches undergraduate English composition.

A major influence in Charles' development as a teacher began in college when he and a philosophy professor would spend time discussing philosophy:

> when I would talk with Mr. Clayburn you know; we'd sit in his office and talk about philosophy and relate it to the politics of the school of the time which were always a little crazy. That was both fun, challenging and made me think of the material in ways that "yeah that makes sense." And I always liked the intellectual inquiry at the time.

Charles did not stop there with his intellectual inquiry and developing a critical or rhetorical stance with literacy. Charles declared that he has had a long history in basic literacy (reading and writing) dating back to his youth when he shared that he, "was always interested in writing" and because of his background, has placed a great deal of emphasis on writing and reading, indicating that he was a "pretty strong reader at a young age." Given his strong literacy background, and his work as a tutor, Charles' emphasis is on the discovery process wherein he and his students try to:

> figure this out together. Because when I do that with someone, I find that as a tutor, sometimes it is a productive use of time. Because if we can figure it out together and we're learning together, then you're going to remember right. And they can use it themselves.

From this point of emphasis, Charles' expectations of his students and the requirements he places on them to remain involved with reading is supported by his comment that:

> I did five times the reading that I assign to my students and they still complain. Yeah, when I was an undergraduate I was reading at 3-4 hours a day and we draw a balance. I see the knowledge-building process much the same way someone might see the rhetorical triangle right. And there is a direct relationship and progressive relationship between reading, thinking and writing.

It is through this deep relationship among reading, thinking and writing that established Charles' early pedagogy and focus on what it means, for him, to be literate in today's society.

Pedagogy: What Characterizes Teaching of Critical Thinking/Literacy. Based on his past emphasis on reading and writing, Charles' thoughts on critical thinking and literacy follow a similar vein and are tempered by the influence of Paulo Freire. Charles shared his view on literacy commenting that, "there is a liberation aspect about literacy" and for Charles, "the question that applies, especially for people who teach humanities is, am I a teacher or am I a propagandist?" While teachers may be viewed as endorsing one theory over another or promoting a particular world view, Charles' desire is for students to become independent thinkers and he tries: "to instill thinking as learning, thinking and

writing as learning. And I think that passes a lot of people by especially those who don't have a very strong literacy."

Charles went on to elaborate on these comments when he shared that literacy:

> means not simply knowing how to read. It means knowing and having their own perspective, a strong, critical perspective, about the work their writing does, about the work that different types of writing as products do, whether they're reading that writers do whether they're reading Time or Yahoo, whether they're reading, oh I don't know, Wuthering Heights for the first time or whether they're an engineering student who is reading a textbook in engineering. So often the mistakes the students I see make is that they think learning is to be absorbed rather than they being active participants in that learning. My bias is that someone with strong literacy is someone who is deeply involved and curious about their learning is involved in the learning process and asks questions of texts and so the real literacy for me is curiosity and engagement.

However, these ideas and concepts do not come without a reflective attitude among teachers and Charles is no exception to the constant internal dialogue as he wrestles with approaches to teaching when he shared that he continues to:

> grapple with how to teach language learning, articulation, thinking about ways to communicate rhetorically. How do I make sense of one: students have to learn the conventions, they're going to have to in order to learn to communicate in the way that people expect, just to make that communication easier. And two: at the same time, how can you use, how can we think of

> learning ways to communicate as writing to learn, as being reflective of the way we do things, the devices we use, the strategies we use.

Thus, for Charles, that energy he takes into the classroom comes from an ongoing commitment to implement the best strategy for teaching critical, rhetorical concepts within the composition genre.

Technology: Approaches to Critical Digital Literacy. Charles' approach to critical literacy was funneled through his passion for reading and writing. He views reading and writing as fundamental elements in developing a critical approach to the topics, issues, and concepts he teaches. Charles' view of critical digital literacy is similar to critical literacy in that he wishes to instill in students the questioning, reflective approach to course material, by summing up what most, if not all, teachers what from their students when he commented, "I want them to think. And I don't care what they think; I just want them to think in critical ways."

Appending the equation to include the stipulation of technology or digital literacy, Charles went on to posit that in this day and age he sees the value of deep reading (reading that goes beyond the short, quick reading usually found on the internet) and the time spent reading, but realizes that "society changes, language changes [and] the expectations of education changes" forcing teachers to alter their approach to teaching.

Charles does not use much technology sticking to the basics such as PowerPoint, Word, and accessing the Internet for classroom activities. However, he still sees the value in technology as assisting in the teaching process. Prior to the interview, Charles' views about the inclusion of technology are tempered by the type of literacy with which he grew up – predominantly print.

Between interviews, Charles did reflect on the use of technology with his pedagogy and determined that he would "do anything it takes to create the biggest opportunity for the reception of knowledge, but that also presupposes that I've been thinking about it and trying to gauge how students have been successful or unsuccessful understanding things." It also means that Charles has choices to make about what type of approach or teaching style he wishes to take and for him "the choices I've made in integrating technology into my teaching have all been directed at, 'Do I think this is the best way given what I know now, to enable students to understand the process.'" In light of that comment, Charles noted that engaging in and expanding the use of other digital elements (beyond what he already uses) within the classroom structure "is extremely time consuming."

Charles is not adverse to learning, using, or implementing technology in the classroom, but mitigates its overall importance to the task at hand – delivering content that stimulates and challenges students. In a discussion about video tutorials, Charles further cultivates his pedagogical stance on technology's place within society and the classroom when he shared that:

> The great thing about that sort of technology is that it allows the people who are engaged with the process a way to begin thinking about "Well do I do that?" The difficulty with justifying those sorts of videos pedagogically is that what if you have a student who doesn't have the framework or some sort of knowledge where they can begin reflecting on that video, or if they don't feel empowered in their writing. So one potential pitfall is students begin to, or disempowered writers begin to think about those videos that "This is what it says I must do it" and so it's not a thinking process. So in those sorts of cases

> the videos don't work because they need the reinforcement of the classroom or some sort of learning environment where we can talk.

Charles' stance on critical digital literacy, encapsulated in its simplest form, suggests an approach entrenched in a fundamentally established rhetorical, questioning, critical thinking world view.

Abby

Content Knowledge: The Early Years. Abby received her PhD in 1971 and has been with University B's English department since the early 70's. Among her many accomplishments, she was awarded the honor of Distinguished Professorship in English. Abby teaches both undergraduate and graduate students and has served in numerous capacities both inside and outside the institution. Her publishing and teaching interests involving poetry and the influence of technology extend from 1998 when she explored poetry and acoustical technologies to her present teaching and research interests in merging the pedagogy of poetry and new media. Abby commented that she got interested in technology "and the way in which film, radio and modern broadcast media affected the ambition of poets." She indicated that her interest in this topic came "naturally" when she shared:

> I started to notice in H.D.'s poetry a real change that I think and my argument was it came from being very, very conscious of the orality of the whole thing and so it didn't make the kind of linear sense that print text do. It made more sense of like a play script or a chant or a hymn, the kinds of things that come orally. So then of course I got really interested in how the media poetics was developing and I've been working with them maybe 10 years or more. And of

> course, you know, the media poetics, there were people who were writing poems for computers in the 1950s after Alan Turing and the Universal Turing Machine and the early computer history, but it really wasn't until the Internet that this work got disseminated and the Internet was '94, '95. So it's been 15 years, basically, that's it. And of course during that 15 years, the programs that you can write in, use to write in has changed drastically and the memories of computers and people's facility with computers has changed. So it's a very dynamic and volatile field.

Abby's view that technology is not grounded in the modern view of "technology is all about computers and iPads," but includes the early technologies of our time like radio and television. This historical viewpoint adds a particular depth to her content knowledge and her perspective on technology and poetry sharing that:

> During a certain period in the 20s and 30s as radio was booming, what happened was it vastly augmented the audience for poets. And at the very same moment, politicians were using radio. So you had FDR's chats and Hitler broadcasting on the radio and so poets like Ezra Pound, H.D., Edith Sitwell, got onto the radio and began to broadcast their poetry which then began to have kind of cultural ambitions that wouldn't be comfortable if the poetry was considered a coterie production or a small group elite production.

Abby also pointed out that she has taken the connection between poetry and technology into the 21st century by noting that her current research is looking at poetry on the internet. Her comments on the interaction of poetry and technology displayed her interest in and her knowledge of the two when she shared an example:

> Poetry on the internet is really only useful if it's digitally born, I think. In other words, if it's composed for the computer. Poetry that is transcribed onto the computer sits there. It doesn't do anything. For example, I've seen this happen, you take a poem like Ezra Pound's *Cantus* and you put it up on the net and then you hyperlink explanations of the poem into it. So you have a reference, a line, say, in Italian and it's highlighted and you click it and it translates the Italian. That's a very clumsy sort of way of footnoting. It's not doing anything new; it's simply putting on the Net what the Norton anthology has been putting into the world forever. But there are poems that are composed in Flash or in Shock Wave or in Java programming that are basically textual instruments and you play them as you would play a video game. And you open them up and they offer you a bunch of possibilities and you click, drag, stretch, transform, you play them, or as people say, use them.

This example of Abby's extensive content knowledge and willingness to incorporate technology in her undergraduate courses, exemplifies how many "digital immigrant" teachers make the adaptations necessary to remain current in their practice and abreast of digital advances to include in their classrooms.

Pedagogy: What Characterizes Teaching of Critical Thinking/Literacy. Abby's continued research interests and hands-on approach to teaching poetry through new media have changed her pedagogy over the years, yet she still remains rooted in a critical/rhetorical approach to teaching when she stated that:

> I think poetry on the Net needs to be mediated poetry rather than just transcribed or transported poetry. You know when you're looking at the

> screen, you're in a whole different mindset than you are with a book. And often with a book you're by yourself, it's quiet, you're concentrating, you have time, you go forward, you go back. But in front of a screen, people are used to clicking and dragging and manipulating and a kind of hyper-attentive feeling.

Another example of Abby's reflective practice and pedagogical approach to critique and critical thinking as it is linked to technology can be seen in her statement that:

> you can't distinguish between technology and pedagogy. I know people say, okay, here's a video, we will show you Matthew Brady's pictures from the Gettysburg, but your pedagogy isn't dependent on how that video works, but when you're teaching digital poetics, it's completely dependent on how it works.

Not only does Abby ask her students to be critical thinkers, she also engages in reflective moments pondering the never-ending changes that occur in her classroom because of technology. Her comment on change typifies her desire to remain well informed of the systematic digital adaptations she must make to her pedagogy and signals the possibility of a new approach to teaching when she shared that:

> I think the change is going to come not from teachers because teachers have been inculcated with print literacy so they learn the practice of close reading, for example, really close attention and silence and solitude and so on but it's the kids whose experience, their most exciting experience is in making stuff . . . and if you ask them to make something, then they are really into it and they are

> very proud of what they do. So I think change is going to come up from underneath with people who are as they say are born digital.

Therefore, in Abby's thinking, while change is inevitable and adapting to change is necessary for teachers, it is vital to begin to adopt new strategies to meet the students on the same digital plane and at the same time, continue to model and impart critical thinking strategies. When asked about teaching critical digital literacy, Abby stated:

> that's one thing that I think when you teach media poetics. How do you approach a piece of work that comes to you on a screen and that privileges language but puts language into process? What are the ways in which it maximizes the capabilities of the media and that's what they need to talk about. you know, when you had most of your poems coming to you in social circumstances and through your ears, to have the poems come in solitude and through your eyes was very different. I don't think you would say oral poetry was better than print poetry; it's just different. It's differently received, differently processed, has different capabilities, different affordances.

Although Abby may not recognize the impact of her statement, this is where the convergence of content knowledge and pedagogy related to technology occurs. For future teachers and students, it is the realization of this convergence that will walk pedagogy forward into the 21st century hand-in-hand with technology.

Technology: Approaches to Critical Digital Literacy. Abby's work in new media poetics and her interest in the effects of technology on her teaching have continued to

influence her practice. When asked about her approach to teaching the digital poetry experience, she noted that:

> What I've learned to do is start from the very beginning with the premise that you do not read a poem on the screen in the same way you read a poem in a book. And so what I do is do the first three weeks – not enough but it has to do – in terms of media regimes so I have them read Walter Ong, for example, on orality and that long, long period of time when poems were always delivered mouth to ear and then the effect of print and print literacy and books and now the effect of the screen. And then the question that I ask is what are the poetics that are productive for screen based reading? If you think of poetry as poiesis or the process of making, what is the process of making when you're making what I would call that a textual instrument rather than a print poem.

Her statements are indicative of the approach she takes in modeling for her students the type of critical thinking she wishes from them and the type of interaction that can exists between technology and poetry. This approach to digital literacy is extended when she shared the following:

> Poetry on the internet – this is where my research is going now – is really only useful if it's digitally borne, I think. In other words, if it's composed for the computer. Poetry that is transcribed onto the computer, sits there. It doesn't do anything.

However, she sees a change coming, not only in the approach to teaching digital poetics, but also on a broader scale as well. When asked about what has prompted the change in approaches to technology, she shared that:

> I think it's got to be a combination of all of it [people, events, and other influences]. I mean, I think I'm different but I think the nature of what I'm teaching is quite different. . . . It has really changed – technology has really changed how I deal with assignments. It's changed all of my procedures in terms of assignments, grading. I have people post for every class; they have to post an answer to a question and it's all collaborative.

As Abby began to think further on the subject of critical digital literacy, her vision of what might transpire in a classroom of "digital natives" exemplified the TPACK model when she pointed out a method she takes with her students:

> But with digital stuff what you have to develop in them is a capacity for openness. With digital material, there is not a right answer, there's not a single trajectory through a work. You basically play the work like you play a game –only you're involved – and some people talk about it as co-writing, you're involved in co-creating off of a program. I do try to model, I try really hard to model the fact that being at a loss and simply saying, I don't know what is going on here is a very big plus in digital literacy because then what you do is you solve it. And as you solve it, as you approach it, you learn what you need to do; you increase your digital literacy.

Diane

Content Knowledge: The Early Years. Diane's degrees include two master's degrees as well as her PhD in English Education awarded in 1996. Diane has a long involvement with teaching at various levels having taught at the K-12 level as well as community college and the university reinforcing her interest in and desire to help all students attain success. Presently, Diane is deeply involved with undergraduate education both in first-year composition, English education courses, and supervising student teachers. While in her current teaching position with University A, her interests have led her to the forefront in developing cutting-edge pedagogy dealing with critical/rhetorical approaches to all forms of communication practices within first-year composition. Diane's research interests also include mentoring beginning teachers and passing along her vast knowledge of composition pedagogy.

With all that is going on in her teaching, Diane keeps a determined focus on undergraduate teaching even though she recognizes that there are challenges to teaching undergraduates when she stated that:

> The challenging part with teaching [freshman English] courses is that often they feel like they had a good English background in their high schools and they often really have. I think we do a really good job at that level but they often feel like they shouldn't be in this class, that they should have tested out of it; that they did well in their high school class and so they don't come in with a super excited mood to be there.

Despite the fact that there are recognized challenges to teaching undergraduates, Diane's philosophy is unwavering in that:

> . . . students should always come first. That you will figure out what are students' interests and what are students' needs and you try to determine your curriculum around those interests and needs. And I would say that is paramount to whatever course is being taught. What I don't believe in is blaming the people and the teachers who came before you for people not being prepared at whatever level they are. That I figure, when you enter a classroom, those are your students and if they're not where you want them to be, then it's your job to bring them up closer to where you want them to be if not at that level.

Because Diane's teaching is founded on the belief that the student comes first and she takes them where they are when they enter the classroom, she has found that she needs to adopt technologies and consistently adapt to the many advances that have taken place over the years. As a result, Diane has infused in her pedagogy almost a seamless blending of technology and content knowledge dating back to her early teaching career when she stated that:

> I have really worked with technology to try to integrate it into my teaching for as long as possible. When I was at the high school level, I got a version of e-mail in 1986; that was way before most people did. I think I was one of two or three people in my town who had access and that was by being connected to your telephone and the old modems and I was only connected to a group of people who were working on research with me and that was way before the Internet and everything. So I've really worked with technology. I applied for a grant when I was teaching at the high school level to get computers in

> our schools, and so we had – I think it was 12 computers that were on carts that we shared and that was also maybe around 1988 and that was back in the time where you had to have two disks, a startup disk that you put in and then your own disk just to run a Word program.

Based on her previous statements, it is easy to see that Diane's dedication to her "student comes first" attitude helped propel her into the digital age at an early stage in her career. This early exposure to technology has greatly influenced her pedagogy over the years.

Pedagogy: What Characterizes Teaching of Critical Thinking/Literacy. Diane's current teaching position at University A gives her and her students access to certain technologies which make teaching and learning easier. However, while advanced technologies are available, Diane appreciates the impact of something as long-standing as a PowerPoint presentation when she stated that:

> For instance, when I make a PowerPoint it makes it much easier to go in and change it the next time than it is to have to redo an overhead transparency or to write things on the chalkboard or whatever. I think it is just much easier. And the students seem to be more interested in it.

Diane's assessment of her students' interests in PowerPoint does not detract from her focus on how technology should be used when she shared that:

> Critical technological literacy would be using technology to further one's knowledge, to analyze information, and to use it to – in a creative way to demonstrate knowledge or to show an analysis. So it can either be using it or it can be – like with the internet all of those years – or it can be using it to create something. And both ways are critical, using your critical thinking.

Despite the fact that Diane's pedagogy has been structured to include technology, and she models a critical/rhetorical approach to technology, she points out that, in her case at University A, she faces challenges noting:

> That we need to -- the fact that I have to haul my own laptop to class, that we should be able to have it where you just put a flash drive in and you're set to go. I also think we need to have Smart Boards and that's coming more and more to the schools and we don't even have it here at the university.

If universities are to prepare teachers and our students for an advancing digital world, model critical digital literacy, and meet the students at their own level when they enter the classroom, a teacher's pedagogy must reflect access to current technologies. Diane points out that, "we're way behind the times as a university. I even had to bring my own projector because I was in a classroom without a projector."

Regardless of the seeming lack of institutional support of her pedagogy, Diane remains undeterred in her pursuit of learning whatever technology is necessary to enhance the learning experience of her students. According to Diane:

> I've experimented some with all the different things my student teachers are doing. They are doing Glogster and so many different things, Book Shelf – Shelfari, that's the name of it, is one. A lot of things like with surveys, like having students do surveys. I've used the clickers before and that works well. So I've experimented with a lot of different things.

As Diane continues to experiment with technology, she models a critical approach, which is passed to her students when she shared that:

> I like the essential questions where you ask yourself, what is it that I really want to teach this period? What question do I want to raise for students? And I think that is more important. I try to -- I have students working with writing lesson plans and for them to say we are going to teach chapter 7 doesn't work. They have to know what it is in chapter 7 that they're going to teach.

As Diane continues to challenge herself, she realizes that, "I'm the "digital immigrant" yes, where things don't come naturally for me; I really have to work at it."

Technology: Approaches to Critical Digital Literacy. Diane concedes her "digital immigrant" status, but that does not deter her from continuing to expand her knowledge about technology, nor her insistence on a critical approach to its use. She provided an example of the type of modeling and expectation she has for her students when she stated:

> I started by showing two objectives, the same thing written two different ways and had them vote on which was better A or B. And by the time we had gone through about 10 of those, they could see how it needed to be specific, what words to use, they were getting more of the idea of it. And then the next slide, I would show one where it was changed. You know, it would be the same thing up at the top and then down at the bottom in a different color would be how it could be written well after they had talked about it. So they got to participate where every kid was participating with every example just by raising their hand or by voting on good, bad, or average, and then by figuring out how to create it better. And so I would say turn to your partner and figure out how you would write this one better. And then I would call

> upon a couple and then I would show on the screen how I had written it. Sometimes I would say, "Well, your example is actually better." And then after class I sent the whole slide to them electronically . . . So they could go back and review it.

Like many other teachers who have students use technology, Diane has times when students grasp the finer points of thinking critically about their use of technology; however, at other times, she indicated that students "tend to do what other people have done no matter what."

Another aspect of Diane's pedagogy is situated in her approach to the many activities she employs during class. There are times in her teaching where she does not always rely on technology to make a point, but encourages her students to rely on other methods. She seems to have drawn a balance or come to terms about whether or not her classes are first and foremost driven by technology or designed to see technology as a useful and powerful tool to use in a given situation. Recalling a class where this balance was demonstrated, Diane shared that during a methods class, she proposed two different ways to approach distinguishing the Montagues and Capulets on stage:

> for things that are not technology . . . you have two boxes of hats and scarves and clothes; one that is a red box and one that is a blue box. So whenever they are performing something, that they have this queue of knowing who is who on stage . . . But then I also encourage them to – for a certain scene, to have the kids figure out, "How would I – how do you think that this line would read?" "How do you think that this character would be dress?" And then to show movie clips from like three different versions of Hamlet.

Diane's version of the convergence of TPACK components appears to balance some old school, non-digital methods with an effort on her part to learn and integrate many differing technologies.

Randy

Content Knowledge: The Early Years. After receiving his BFA in 1975, Randy began his teaching career at a high school. He was exposed to technology very early in his teaching and has stayed abreast of advances ever since. His introduction to technology started in 1978 when, after a little training from the high school business teacher, Randy put together a "stand alone dedicated software lab." After 34 years of teaching at the middle and high school level, Randy attained his master's degree in 2007 and since that time has been working with University C.

Although Randy's tenure in the university environment has been brief, his teaching experience and work with technology are extensive and considered valuable assets. He currently teaches undergraduate literature, teacher education and has recently developed and taught an online course in Shakespeare. During the interview, Randy referenced numerous training sessions, individuals, and companies that were or are on the cutting edge of technology innovation. For example, In 1993, he was part of a National Endowment for the Humanities workshop "and one of the workshop participants said that the World Wide Web was going to change the face of teaching." Randy also tries to stay abreast of current technologies when he remarked how a small company in the Midwest has recently revolutionized the gaming industry. Since Randy's early experiences with technology, he has not looked back and has continued to look forward stating that the "theme of my career

has always been, why fight change." The challenges surrounding technological change and the how to best adapt to them in the classroom are concerns of many teachers.

Pedagogy: What Characterizes Teaching of Critical Thinking/Literacy. Rick's long history and vast experience with technology coupled with 34 years of modeling technology use and practice with middle and high school students has afforded him a pedagogy that is both rigorous and developmentally sound. For example, he worked with an early program called HyperCard that allowed him to develop material for the classroom. This early program also gave the students exposure as to how technology could be used to foster learning.

Rick commented that, "in the early to mid 90's . . . I created a computer lab in the back of my classroom. That created all kinds of possibilities." From that beginning, Rick related that he "moved onto the more advanced Google Pages and Google Docs, which morphed into Google Sites, which I think is the dream situation for teachers." Accessing and modeling their use allowed him to produce documents the students could collaborate on as well as provide them with more contact with technology. He realized that in that online environment as well as with Google Docs, "a lot of kids are much more willing to talk in an online format than they are in class."

These examples of Rick's ongoing interest with technology as a means to incorporate the critical component and develop rigor into his teaching brought forth the following comment about his practice:

> I think that's where the 34 years of teaching experience comes in. Thirty-four years of experience of constantly trying to upgrade what I do. And make it work for the kids that are – not necessarily – not working for that change

> and isolation for my students but being driven by how the needs and the skills of my students have changed.

An aspect of Rick's pedagogy that has remained the same throughout his career is his dedication to remaining abreast of the technologies students are using. Because he believes that "online education is where we're going whether we want to or not," Rick is fully aware of the history of change and "the transformation that's gone on in English education since the 70's."

As Rick moved his comments from the past to the future he shared that he "helped develop a training camp on campus for kids called Camp Multimedia" which will allow mostly "6th through 8th graders" access to "some of the latest innovations in technology." Additionally, he is developing a literature course for his students using Adobe Connect, a more advanced version of the ICN. As Rick continues to merge technology and critical thinking, his goal is to continue "stretching people to do things they haven't done before with technology or to take things that they already know how to work and apply them in new and unique ways."

Technology: Approaches to Critical Digital Literacy. Because of Rick's extensive history with technology, asking him about technology, critical thinking and the future of digital literacy held promise. When asked to define critical digital literacy, Rick shared that:

> I would describe it as having the skill and ability to accomplish the task required of your job and ability to learn new technologies, so using technology to accomplish those tasks. None of us are going to have jobs where we – so that literacy – literacy in that sense means I can learn to use the software because we are always going to be learning new software; it's

> never going to be a static thing . . . so I believe the most important skill we can give people is the ability to learn; that's the literacy, and the ability to accomplish your job task incorporating technology where appropriate.

He also commented on the fact that, as a consequence of technology, students today learn differently and that will alter teachers' approaches to digital literacy when he commented that:

> our students actually learn software, learn technology faster than we can. And so that puts us in a unique position where we don't – I don't really think we are going to have to teach people how to learn software, what we're going to have to do is teach them how to envision unique and new ways to use it and to apply it.

Once again the onus of teaching students these skills falls on the shoulders of teachers, specifically English teachers who are obliged to direct curriculum to meet these needs. According to Rick:

> the first and most important thing we need to do is listen to them. The best that we can hope to do is work with our students and equip them with the adaptive skills. It's part of what I believe is a continual change that we've been on for quite a while in the teaching profession and that is to move away from content to skills. The best that we can hope to do is work with our students and equip them with the adaptive skills. It's part of what I believe is a continual change that we've been on for quite a while in the teaching profession and that is to move away from content to skills.

Rick admits that his students are "not really interested in what I have to say about technology because they're far more adept at it than I'll ever be." If Rick's prediction of teaching skills rather than content becomes a reality for teachers, then teachers will have to, almost totally, restructure how education is delivered and taught. Even with his vast knowledge of technology,

Josh

Content Knowledge: The Early Years. Josh's career spans 40 years of teaching and other experience in the private sector as a technical writer for a nuclear energy facility and designer for a computer information center. His current position and main interests lie in analysis in writing and reading courses and teaching aspects of critical thinking. Josh received a BA in English in 1970, completed a master's degree in 1978; then "in 1980, after I was a chartered fellow, . . . I completed a doctorate in education from in 1983, [which] was a very energizing community to be a part of." Josh's teaching experiences at the high school, community college, and university level are linked with positions in four states finally ending up at University C where he has been for he last 23 years teaching mostly writing courses.

His position also affords him the "opportunity as an English educator to actually teach an integrated reading and writing course, to teach literature, and to help students develop their understandings of literature and write about it." The university has also called upon Josh's past experiences to teach an introductory course that fits well into his content area and advance his teaching agenda which is not "to make them great creative non-fiction writers necessarily, but to – they haven't done it so they have to think about

their writing very deliberately." Josh's desire to engage students' critical thinking skills when they write is a theme noted throughout the interviews.

At University C, Josh has been able to teach literature, technical writing. English methods, expository writing, and essentially "taught everything in the undergraduate sequence offered by the English department" (Josh).

Pedagogy: What Characterizes Teaching of Critical Thinking/Literacy. Early in Josh's teaching career, he was educated in a program that "tied together their reading skills, their writing skills, their thinking skills" although, when it comes to students' thinking skills he suggested that, "they are just very superficial in their thinking," yet, his teaching philosophy has "remained constant over the years – I'm very student-centered in my teaching." Josh seemed enormously vested in his teaching and his philosophy to the point of:

> constantly looking at what I'm doing as a teacher to the point that each time I prepare a syllabus I go back and I say, well, should I be doing this particular assignment or reading these particular texts. Did these fly? Were there other works that are in the anthology, for example, that the students seemed to have picked up on independently to write about that we aren't doing in class and maybe there's better choices and those kinds of things. So I find myself very much oriented toward thinking about the students . . . [and] really much more interested in developing the students' critical skills in terms of thinking and writing and speaking.

Because Josh has been teaching so long, he has refined the types of probing, rhetorical questions he asks students to address critical thinking skills. For Josh, this

teaching method is not a conscious day-to day endeavor, but because this has been a constant practice, he "does not say to himself, 'Oh, today we're going to work on X'" (Josh).

Josh shared that early on he realized that continuing his education would be a key component to refining his teaching and many of his early instructors and colleagues helped shape his pedagogy. He also constantly referenced scholars in the field (Patricia Kelley, Robert Small, and Constance Gefford) who influenced him and helped develop and advance his pedagogy through technology.

Technology: Approaches to Critical Digital Literacy. Josh has a technology-intensive approach to teaching his students, and stated that critical digital literacy "involves analysis of content, whatever that is, whatever the content is." He went on to expand his thinking on the issue and shared that:

> if you want to be strict with it, the critical digital technology, we're going so much to digital stuff which just absolutely amazes me. I mean I started teaching in a world where we were threading videotapes around spools. What would I consider that to be? I think it's vitally important for us to be able to approach in an evaluative sense up against a set of criteria, looking at what is coming at us that has been produced, recorded, transmitted digitally, so that -- and the literacy is our being able to handle all of those things.

Josh reflected on what seems to be a global view of how technology affects our lives. Therefore, according to Josh, his approach to teaching digital literacy lies within "his and his students' ability to access and use information either for himself or his students." As he considered his last statement, he went on to say that he:

> does not see this as a barrier, I think it's an opportunity. I know that I am constantly amazed at how fast I can get information. This morning, for example, I was doing some research and I was reading some articles that I had found over the past several weeks. And I had a reference to another article, so I flipped to the section of the article and I went in and I would guess in a matter of minutes I was able to connect to the library here on campus, go to the article, do a search by article, put in the information where all I had to do was push a button and up pops that entire issue of that journal. And, I mean, it was done in just a matter of minutes.

However, regardless of the availability and the speed at which he is able to access information, Josh indicated that there was a distinction between whether technology drove content or content drove the use of technology. Josh believes that "it's the content that drives the lesson," but realizes that the students are more attuned to technology than he is. Josh indicated that, "I'm still book oriented. I still use textbooks, however, there is not a day that I'm teaching that I am not using some form of technology." Part of Josh's responsibility is to prepare teacher education students to go out and use technology from a critical perspective and commented that:

> I think that's one of the challenges where they must learn to balance [content and technology] because they are so extremely media literate and they are so wired coming in. I think the students take all of that for granted and do it very easily and they are sometimes excited about what the technology brings to them. I think in terms of some of our students here in the teacher ed programs have just been completely and totally taken aback when they do a

> field experience in the [surrounding] schools where all the classrooms have a Smart Board system and all the teachers have a laptop that they are expected to use to connect their lesson plans to the Smart Board.

While the students may not be caught off balance when confronted by uploading information to the Smart Board, using that information to enhance student performance in a critical, rhetorical manner becomes another matter. Josh does model the critical perspective for his students but admits that sometimes the students just do not grasp the concept commenting that, "they're probably much more media savvy than I am but I'm also probably better at the evaluation of source material, regardless of what it is." Josh also shared that, "oftentimes my teaching with technology occurs [and] I find students fall into a problem that none of us had anticipated."

Josh acknowledged that even though students are so, "media savvy, media surrounded, and immersed in media" that when confronted with the critical component of analysis, deep thinking and reflective thought about how to use technology or determine what technology is best to use in a given situation, someone must guide them to and presently, English teachers are still at the forefront of the struggle.

Summary: Technology, Practice, and Pedagogy

The purpose of this chapter was to familiarize the reader with the educational background and experiences of the six participants through the lens of the TPACK model. In a broad sense, all six shared some common bonds that extended beyond teaching undergraduate English at their respective universities. Their educational backgrounds had their roots in a strong print-based literacy; therefore, participants did not grow up with technology but grew into it. Even though the participants have been teaching a long time

and would be considered "digital immigrants," data collected from the interviews indicated a recurring theme of early interest in and desire to use digital tools in the classroom. For the most part, this interest in technology started early in their careers and proved to be an important component of their teaching practice. In several cases, participants were at the forefront of digital advances and assisted in developing curricula and programs not only in their respective universities but also outside the university. Data analysis of sample assignments bears out the continued practice of blending technology with student learning.

Another component of note was the issue of critical thinking. All the participants were deeply invested in the practice of developing, engaging, and fostering critical thinking skills in their students. Because the participants were experienced English teachers with extensive content knowledge, incorporating critical thinking skills with technology use and then transferring that knowledge to their students seemed an almost natural, unconscious part of their pedagogy. Additionally, though these teachers are considered "digital immigrants" based on Prensky's definition (2006), all the participants seemed to cultivate, within themselves, an ongoing desire to grow with technology and continue to integrate critical thinking skills along with any digital advances they encountered.

Chapter 5 presents the findings from this study. Five common themes emerged from the data analysis that contributed to the development and use of technology in the personal and professional lives of each participant and were situated within the broader, overarching concept of the TPACK model.

CHAPTER 5

Findings

The findings from this phenomenological research study were obtained through a phenomenological data analysis (Moustakas, 1994 & Fraenkel & Wallen, 2006). As a result of the data analysis, five themes emerged that answered the overarching research question: *How do "digital immigrant" faculty teaching English at a four-year public university in the Midwest describe their experiences with technology and teaching their content area in undergraduate English?* The five themes that emerged, along with several subthemes, from the data analysis are:

Theme 1: Early pioneers in using technology with English course content:

- Curiosity and interest in technology
- Curiosity and access does not offset critical thinking.
- Availability and access to technology

Theme 2: Constant evolution of technologies proved to be challenging

Theme 3: The changing nature of student learning prompted their investment in teaching with technology:

Theme 4: Expanded opportunities for depth and breadth of content:

- Relationship between student and technology
- Alternative delivery methods

Theme 5: Technology, pedagogy, and content are seamless in learning:

The remainder of this chapter will explore each of these individual themes and subthemes in detail and provide supporting evidence from the participants' transcripts. Prior to starting the interviews, I explained my background to each participant, and

because of that background experience and present teaching assignment, the participants were very open in their responses to my questions. That openness allowed us to reach a level of straightforwardness and familiarity when in the interviews. This level of comfort allowed tangential discussions that provided deeper, richer responses to the interview questions.

Theme 1: Early Pioneers in Using Technology with English Course Content

The participants assumed various positions on the subject of technology and provided a wealth of information about their early experiences with it. They explained how they became interested in technology, how they viewed technology, what they saw as the role of technology in their lives and in the classroom, and how they developed critical thinking in students through technology. Each of these areas is presented as a subtheme.

Curiosity and Interest in Technology. One theme that was common for all participants was a unique level of natural curiosity about technology. Participants indicated that other teachers were aware of the burgeoning technology of the time, yet the participants in this study indicated that they took the lead in its use. There were various technologies emerging at the time such as early versions of email, software that allowed website design, and other experiments with the World Wide Web and the participants seemed unafraid to investigate this uncharted territory.

The participants described how early contact with technology played a significant role in their careers, as exemplified by Randy, who identified himself as a "technophile," and stated that he received access to his "first set of computers . . . in [his] building [around] '78 or '79." He also mentioned that he had his own webpage before the school had a web presence. Brad noted that his first experience began in the early 90's with a digital

classroom of 24-networked Macs along with sufficient software to have students produce websites, which "was at that time, . . . on the cutting edge of using electronic stuff in the classroom." Diane's curiosity also put her at the forefront of her contemporaries by receiving a "version of email in 1986" that allowed her to connect with other researchers and again in 1988 when she received a grant which purchased 12 computers.

The participants' interest in technology did not stop with the early experiences, and while they may not have the time or inclination now to learn all the new digital knowledge available, they are still vested in its use. Analysis of these shared experiences also helped situate the role of technology within their pedagogy, classroom practice, and careers as they dealt with advancing critical thinking skills.

Curiosity and Access Does Not Offset Critical Thinking. Throughout the evolution of technology and the participants' early and continued use of digital media, they remained focused on teaching English content and developing critical thinking through the lens of technology. Technology presented new and exciting opportunities for the participants to present alternative genres to stimulate critical thinking, not only as students approached English content, but also how they managed technology itself. An underlying concept that I was able to bracket out during the interviews, but explored in my journal, was the idea that using technology affected the way critical thinking was taught. An assumption was that critical thinking about content took a backseat to technology, that teachers were teaching the software but not the critical thinking needed to use technology wisely. Josh proved the assumption wrong when he commented that the, "technology increases – speeds up the access to the information, but we still have to be willing to critically evaluate this sort of material." His comment reflected the thinking of all the

participants that, while technology is an important part of their teaching practice, students "still have a critical obligation to examine, to question, to interrogate that technology as opposed to just, you know, breathe it in" (Brad). What I discerned through comments like these is that these participants spent a great deal of time thinking about the critical perspective regarding technology almost as much as they thought about critical thinking in their content area.

Hence, while early curiosity and enthusiasm of these pioneers put them at the forefront of their respective fields and peers, and they continue to seek out available technology, the participants have kept a keen eye on a critical, rhetorical approach to their teaching.

Availability and Access to Technology. As I reflected in my journal about this early use of technology, a question about the availability of and having access to technology surfaced: How was it they had access to technology at such an early stage, not only in their careers, but also in the early evolutionary process of the technologies of that time. During analysis of the transcripts, it became evident that they were in the right place at the right time.

In Josh's case, he started his career outside of teaching as a technical writer and educational designer, which put him in direct contact with developing technologies and other technical-minded individuals as well as educators looking for new and better ways to enhance their teaching. Randy's path was a little more self-serving when he indicated his interest stemmed from his poor handwriting and the "computer could do so much better," so he sought out the only lab in his school and was fortunate that it had "dedicated word processing." From there, he went on to enjoy greater access to the lab and begin to employ

its use for his students first through basic word processing and later more web-based programs.

Abby's curiosity about aspects of her content and available technology drew her to seek out how early media, such as radio and film, affected the ambition of poets. She has since continued to keep pace with and embraced the current crop of available technologies all the while maintaining her focus on her content and research interests.

While the participants have enjoyed their exploration of technology, they did experience challenges related to both availability and access to technology. Over the years, their access to technology has increased because technology manufacturers have made it more available in a variety of forms, and the participants took advantage of that availability. Josh highlights this point when he shared his experience with his new iPad stating that, "I can put a half dozen books or a dozen books or three dozen books or however many books I want to put on there, on my I-pad and I'm carrying around one thing rather than a whole bag of books." Diane has a great deal of knowledge about some of the newer technologies, and has access to a number of digital options, in part, because her university is vested in it. However, she does not always adopt the technology because of the time involved to learn it. A central point that drives Diane toward technology is her pedagogical stance of student-centered learning when she asks herself:

> What is the main point that I want students to leave with today? And then I may say to myself, "How can I get across that point in the most effective way with most students participating in it, and usually it means I am going to have to show it visually in some way and then the visual part usually means technology".

Abby also takes advantage of the availability of technology by having her students access anything from video editing to developing avatars through a computer program.

What I discovered from this analysis is that there is a wealth of technology available and accessing technology was not difficult for the participants, though some barriers and challenges confronted them. However, what piqued their natural curiosity to explore technology early in their careers is still present.

Theme 2: Constant Evolution of Technologies Proved to be Challenging

After reviewing the transcripts, all of the participants acknowledged that technology had saturated the very fabric of their lives. Digital advances had become so entrenched in their professional careers that they were challenged, almost forced to create ways to consume and integrate it into all they did. Abby realized this challenge early in her career observing that, "it is a very dynamic and volatile field . . . [because] you really have to learn a whole new process, new expectations, and new protocols."

Many of the challenges participants experienced revolved around the issue of adjusting to technology's transformations – do I have time to learn new software and am I committed to learning all facets of the technology, do I have time to teach the technology to my students, or do I let them learn the technology while I teach content, do I have time to become proficient with what I have learned. These questions, and many others, were expressed by the participants and most were explored during the interview process, while others lay quietly under the surface of their decision-making and were exposed through their member checks of the emerging themes, such as the comment Brad shared when he observed that, "it is so tough to try to keep up with everything." Randy also had similar experiences when he shared that,

> Past conversations with a lot of teachers, you know, they kind of get tired of the changes. So many people were, oh, why do we have to do this? The old one was better. I liked it, so on and so forth. They were used to it. And as I get older it's getting harder for me to do it but I kind of think about the day I am no longer able to adapt to change is a sad day.

To one degree or another, all the participants experienced the challenge of time. Over the years, they have experienced changes in computer software, advances in digital devices and the participants needed to essentially change the way they thought about technology. The whole digital evolution brought about a thought process related to technology that proved challenging to the participants especially as they asked themselves or were asked by their institutions whether or not they had the time to invest in learning and adapting to the changes. Charles supported this premise as he explained that, "if you wanted me to use Blackboard and I thought well I've got time to do it. Sure, then I'll look through it. You know there will be times when I leave it at that and there will be times when I pursue it further." Randy also mentioned the issue of time when he commented that:

> With me it's -- a lot of it has to do with time. I've [worked with technology] enough times that I know that if I have the time to sit down and do it I will eventually – you know, I've struggled with enough problems to realize that almost always the solution to the problem is actually rather simple. I just have to spend the time to discover it. I'll do the training. If the training is available and I have the time to do it, I'll do that. But then I still – there's still – it requires me to actually go take what I've learned and apply it. And so

> almost always the thing that breaks the back of the problem is me having something I want to do.

This type of decision-making was experienced by all participants as they wrestled with approaches to dealing with technology.

Several participants were challenged in their ability to choose appropriate technologies for classroom use particularly as technologies continued to evolve. They wondered if they chose appropriately, but also if they had the time to learn the technology. For example, Diane had a choice between allowing students to role-play a scene from a novel or play a YouTube video depicting the same scene, while Abby's challenge was to decide to view a poem in print versus a poem "composed in Flash, or in Shockwave, or in Java programming that are basically textual instruments and you play them like you would a video game." Randy's experience with technology is rather extensive, but there were times when he just, "didn't want to spend the time to go learn Dreamweaver. The learning curve was much, much steeper," so rather than take the time to learn new software, he chose not to.

Analysis of the data revealed that for some of the participants, the constant changes were becoming tedious. Because they were early practitioners with technology, they have seen an inordinate number of changes and digital advances take place over the years. Some no longer wanted to take the time to learn another iteration of a program or management system.

Additionally, their institutions were also prompted to choose technologies appropriate for the entire university and this shifted the paradigm from the participants' personal, classroom situation to a more global, university-wide one. When the institution

made the changes, it forced teachers to take the time to learn new programs and systems. Randy exhibited some frustration, which was held by others, during one program shift at his university when he shared that:

> Adobe quit supporting Front Page. I had put a huge amount of time into mastering Front Page. . . I thought it was awesome and then all of a sudden, I mean in a period of three or four months, Front Page announced that it was no longer going to support Front Page . . . and the [university's] Front Page server was going away. Crap! I tried to learn Dreamweaver, but I just didn't have the time to invest in it.

Josh had a similar experience and essentially refused to adapt to a newer version of Blackboard. Describing his university's decision to upgrade their Blackboard management system, he indicated that he, "had taken instruction on Blackboard 4 . . . and then they changed to Blackboard 6. Well, it was learn a new system, and I sort of said, well forget that. I don't have time and then we got to version 8." Updating and upgrading technology kept faculty exposed to the latest advances, which allowed them to choose appropriate resources for their courses but challenged them to invest the time to learn and adapt the newer technology to their practice.

Changes at the institutional level may require a time commitment as a number of training sessions may be necessary for all involved to learn and become proficient with the technology. Even at the classroom level, some training is involved, but choosing to learn version 8 of Blackboard instead of version 4, as in Josh's case, was less intimidating and time consuming, regardless whether the training is institutional or self-taught. However,

the end result for the participants remained the same. They all noted the need for time to learn and then adapt the technology to the assignments.

Being "digital immigrants" may play a role in how the participants grew into and adapted to changes in technology over the years, because, like Randy and Josh above, teachers may be comfortable with an older software package and resist the urge to take the time necessary to constantly upgrade to newer versions. Brad commented that he just "got tired of the constant changes [because] it was so tough to try to keep up with everything." After so many years of changes, perhaps the "digital immigrants" just grow weary of having to adapt to another technology.

What I found during analysis of the data is that all the participants recognized that the changes in the digital world were ever-present and adaptations to the changing nature of technology must be made in order to keep current. There is almost a sense of societal pressure that says what you have is not fashionable, others are using newer technology; it is time to upgrade. Brad, however, had to "put on the brakes [because he] can't be running forever trying to keep up with a techno-sphere that changes faster than I can change." Diane had a follow-up response indicating that she was interested in purchasing a Kindle but hesitated because of the constant changes to the product; she never buys anything when it first comes out because the technology will develop a new version in about a year. Therefore, while the "digital immigrants" were willing and quite able to master various technologies, it has become increasingly difficult to stay up-to-date. There just was not enough time to adapt to each change or upgrade to the latest digital device to rear its motherboard.

Theme 3: The Changing Nature of Student Learning Prompted Investment in Teaching with Technology

This theme emerged as the most instructive from the data analysis. Participants had noticed changes in how students were learning and recognizing these changes helped participants situate their thinking in terms of classroom practice. According to Prensky (2006), teachers are dealing with a digital native student who views digital devices and programs the same way "digital immigrants" view the TV and the telephone. Brad made a comment that contextualized the changing nature of student thinking and learning and spoke to reasons for being forced (personally or institutionally) to invest more time into teaching with technology:

> You simply can't keep people away from what the techno-sphere is doing. I mean, can you imagine someone who would choose not to use the Web? Who would choose not use e-mail or Facebook or something like that? It's inconceivable. It's like choosing not to use electricity.

Currently, research is beginning to intimate that students' brains are changing as a result of technology's influence (Carr, 2011; Prensky, 2009; Tapscott, 2008). Greenberg (2008) suggests that the brain's neuroplasticity is acutely adapted to change "as our experience changes" (para. 2). The implication is that constant immersion in the digital world has changed the cognitive patterns of the brain and the students' "mental reflexes and habits" (Tapscott, 2008 p. 1). Recognition of this new dynamic imposes a paradigm shift in which educational adjustments in teaching and learning is warranted.

In response to this new development in student learning styles, the way teachers deliver their content and adapt their teaching style, required adjustments in the overall

pedagogical stances taken by the participants. Given the current evolving digital technologies, and the fact that students are processing information differently (Carr, 2011), teachers must change methods to integrate select technologies in the classroom that meet these new demands. Brad suggests a strategy that meets the needs of both student and teacher when he commented that:

> I've always tried to teach technology in terms of continuity rather than discontinuity. Rather than saying this is a brave new world in which we leave the old world behind, I try to show how most of the issues that organize thought in the old world are going to still organize thought in the new world, it's just that we're going to work with them differently.

All the participants recognized the changes taking place in student learning and, while curiosity might have prompted their initial foray into technology, the need to "just take them where they are and bring them to a higher level" (Diane) is now a major driving force in the participants' investment in technology. Therefore, in order to "take them where they are," all the participants had to rethink how they approached teaching with technology to engage students who process information in different ways. While the participants all thought that technology was a key component to their teaching, what the "digital immigrant" participants hope will not get lost in the technology is the critical thinking/analysis component of learning content knowledge.

During analysis of the data, I realized the participants understood the nature of how their pedagogy and their students' differing learning styles affected technology use in the classroom. Charles recognized his need to increase his efforts in choosing appropriate

technologies to engage students who thought differently as he shared an example commenting that:

> I think that in many respects that I would be remiss if I didn't talk about the increasing role that social networking sites are having in the business world. Right now we have businesses and politicians using those in ways that we couldn't have imagined say 6 years ago, 6-7 years ago. Never would have imagined and maybe this is a reflection of my own history but I don't often pay attention to those things when they come out. But at the same time the question is are we as teachers charged with requiring students to learn something that they will use.

Supporting Charles' statement, Brad also recognized the different thought process used by students when he commented that, "if you're going to talk to students who live in that world of instant communication and live in that world of connectivity, you have to change things." Data analysis revealed that responding to the changing student thought process required changes in her approach and thinking. Abby responded to those differences explaining that:

> With digital material, there is not a right answer, there's not a single trajectory through a work. You basically play the work like you play a game only you're involved – and some people talk about it as co-writing, you're involved in co-creating off of a program. So, I try really hard to model the fact that being at a loss and simply saying, I don't know what is going on here is a very big plus in digital literacy because then what you do is you solve it. And

> as you solve it, as you approach it, you learn what you need to do; you increase your digital literacy.

In essence, teachers must make an effort to maintain digital competence and re-evaluate teaching approaches based on how students currently process information.

In response to thematic evidence pointing to a change in student thinking, new approaches to teaching with technology must be undertaken. However, the necessity to learn newer technologies has advantages as it has the potential to add more resources to the participants' teaching arsenal.

Theme 4: Expanded Opportunities for Depth and Breadth of Content

Participants alluded to the fact that as they continued to teach with technology, they came to the realization that technology provided a level of engagement with course content that was unprecedented. The noted that students had begun to form an almost symbiotic relationship with technology, which allowed added a greater depth and breadth to their content material. Therefore, the relationship that students and teachers had with technology was another factor in how deeply content could be explored.

Relationship Between Student and Technology. Through the words and documents I analyzed, I saw the participants' deliberate focus on students linking themselves to course content because of the nature of the connection they had with technology. Abby provides an example that illustrates how students can become engaged with course content through technology when she shared that she has her students "take a look at all different kinds of games that set up virtual worlds and then look at the way the poems figure in those virtual worlds and they [students] are fantastic." In particular, Abby

noted that many students had experience cropping pictures, posting comments, or editing videos, which were then uploaded to the web.

As a result of these skills, students were more connected to the digital experience and that connection was used to further engage them in deeper reflection about course content. Therefore, when the participants included that connectivity through technology, they found that students were more likely to accept and understand a greater degree of depth and breadth of content.

Josh recounts an example of the type of depth and breadth reached by students explaining that his students were reading from a digital reader and "being able to touch a word and then have the computer give [them] a choice, do you want to look this up in the dictionary or do you want to look it up in Wikipedia." As an instructor, he is also able to do "Internet searches and bring up either images or videos that [he] can then present to the class or use in the class, or put on the learning management system." Diane also relayed an example that showed the capabilities of technology to add depth to a lesson. In her example, students were given laptops and asked to access a website with different book covers listed and then:

> they were to make predictions about what they saw from the cover and then they were to rank which of the covers they liked most. And before that she used a thing called Shelfari, where they were to tell how do I select books. Do I do it by author, by title, by looking a them on the shelf? Do I look at which ones have gotten awards, do I look at the cover, the back cover? And they answered those kinds of questions. And then she put them into a – one of those quiz type of things that tabulates the answers so at the end of the

> class period she could show on a bar graph what were the top rankings in the class.

This type of engagement and involvement with the content through technology added substantial depth and breadth to assignments and proved to be a means for students to connect with content. Diane explained this concept by providing a classroom example where:

> you can have kids come to class having read a novel or a short story and then they each write a sentence or just words that would be the themes that they see and then they can text that into their cell phone to a certain number and then you can show all of them on the screen and then you can put them all into WordAll and it will show which words appear the most. And so that's a great way of using student involvement that every student is involved and instead of just starting with here are the themes, like a lecture or just asking a whole class discussion of what are the themes, that you've already gotten student input in order to start the discussion.

Another classroom example described by Abby also supports this premise when she stated that her students were, "really good at seeing the aesthetic of the screen because they have a lot of experience with screens."

As previously stated, the participants discovered that available technology gave them greater access to a host of videos, programs, software, and hardware. Because they had increased access, they were then able to make adaptations to their teaching practice resulting in a change in how they delivered content.

Alternative Delivery Methods. During data analysis, I noted that since the participants had a variety of digital material available, it made teaching easier. They recognized the challenges of selecting appropriate technology and time to learn it, but once that planning and preparation was met, they believed the newfound resources increased their options for alternative delivery methods. There is no question that past teachers had access to various resources to supplement content; however, given options provided by the Internet and other digital devices, there is much more information available now, and these resources are easier to access. No longer do participants have to wait for a film to arrive, scan a VCR tape or DVD to find a particular scene to watch, or search through books to find a passage, poem, or picture to copy before class started. The resources available to the participants aided them in delivering course content in distinct ways, which added depth and breadth to the lessons. Randy explained his alternative delivery method when teaching an online course through a program called Panopto, which:

> allows me to record like with a webcam, me talking at the same time recording a PowerPoint or Prezi window and the changes I make in it. So kids can access it anywhere they have the internet and then they can respond to it like they would a discussion but instead they can respond to it in a variety of media including cell phone.

Having this type of delivery system made it easy for Randy to "teach" his class from a coffee shop or his home, gave him the option to record and emphasize salient points during the lesson, and allowed students to respond in a variety of ways, thereby extending the discussions about content (Randy).

Once the alternative delivery method was in place, students were now afforded the ability to explore the resources embedded in the lessons and to be connected to the content through the instructor and other students. Randy has had similar teaching experiences over the years and noted that this type of teaching method appealed to him and has directly affected his pedagogy.

Theme 5: Technology, Pedagogy, and Content are Seamless in Learning

Analysis of data indicated that the participants' involvement with technology was a major influence on their careers and pedagogy. Over the years, Josh, Brad, and Charles all found themselves drawn to technology and they became inexorably linked to it. When asked about his connection to technology and its effect on him, Josh stated that he was "surprised at how much I am sort of dependent upon it in terms of knowing that I can't teach as effectively without it, [and that] it makes me much more deliberate in my teaching." Brad's view of technology's effect on his pedagogy summed up what future teachers may have to think about before stepping into the classroom when he commented that, "teachers can't live in the era of the blackboard when all of their students are living in Facebook."

All of the participants had been influenced by their individual accomplishments dealing with the digital world and realized that technology had affected the very foundation of their personal and professional lives. Charles views the integration of technology and pedagogy as an integral component of his thought process and practice when he shared that, "I know that when I teach and I do use technology or have students use it, it is always integrated into an inquiry process. We use it to find things out, to ask, what's the usefulness of it, how are we using it." What Charles revealed in his comment

follows what the others have indicated, that there is an almost seamless integration of technology into teaching practice.

Buried within a teacher's teaching toolbox lies content knowledge, pedagogy, and a style of teaching based on prior, perhaps older, models of content delivery. That is not to say that past teaching practice is not replete with innovative delivery methods and models. However, the past did not possess today's abundance of technology and digital resources representing a paradigm shift in teaching practice.

There are many teachers, the six participants among them, who view technology, pedagogy, and content knowledge as a singular body of teaching knowledge, the same way Koehler and Mishra (2008) view it in their TPACK model.

The following comments by Abby and Brad underscore the consensus the participants had in understanding the convergence of these principle components inherent in the TPACK model. Abby observed that, "At a certain level, you can't distinguish between technology and pedagogy." And she followed that up with another observation noting that:

> there's a distinction that might be useful to make which is that you can use technology as a supplement for your approaches. In other words, you can use slides with a lecture but if you take this TPACK model and you make the technology, pedagogy and content the same, it's not a supplement. It's at the heart of the matter and that's the difference, I think.

Brad reiterated with several statements pointing out that, "It's hard to separate the technology from the content." And again explaining the scope of technology's reach when he shared:

> It's not just that technology moves us into new areas of knowledge but technology also helps us, it becomes a lens through which we look back at what we have been doing and better understand what we have been doing. So I always hope that the technology, you know, moves in both directions. It moves us forward but it also gives us a better purchase on understanding what we have been doing before or what we thought we understood what we were doing before.

Prior to our interview none of the candidates were aware of the TPACK model (Figure 5.1), yet the analysis revealed that all six individuals possessed an uncanny and acute knowledge of the concept.

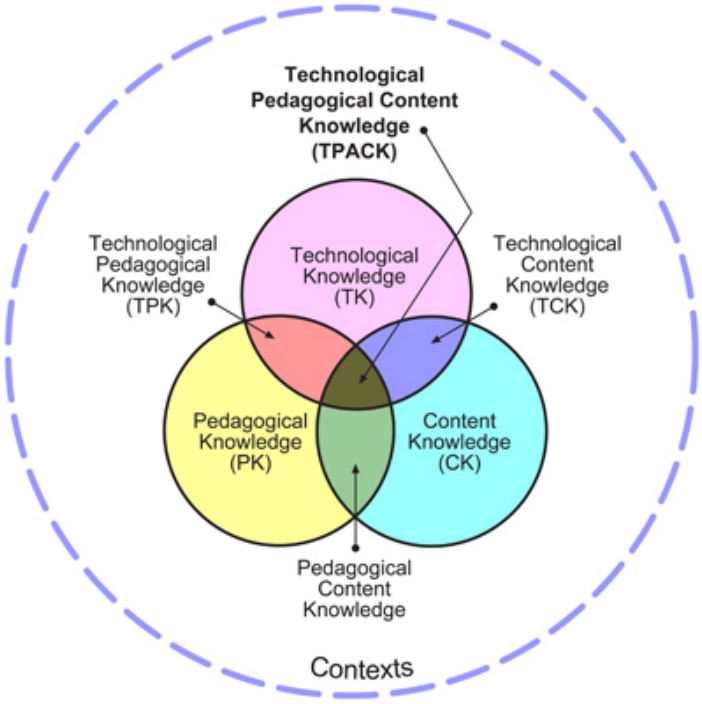

Figure 5.1 TPACK model

When I first queried the participants about their background and early lives, and then later about their careers and practice, there was no evidence that would suggest that

this shared phenomenon would take place; however, analysis uncovered six distinct individuals scattered across the Midwest who all shared a common experience and thought process based on a particular pedagogical model. Further analysis of the transcripts revealed that all six participants are still seamlessly blending the three major components of technology, pedagogy, and content knowledge proposed by the TPACK model.

Summary

This chapter presented the findings from the data analysis of the shared experiences of the six participants and yielded the following five major themes:

Theme 1: Early pioneers in using technology with English course content described how the participants started their careers and their early interaction with technology. This background information also set the stage for the participants' future teaching practice and research interests.

Theme 2: Constant evolution of technologies proved to be challenging described some of the challenges faced by participants as they and technology grew throughout the years.

Theme 3: The changing nature of student learning prompted investment in teaching with technology explored a challenge to the participants as they discovered the changing nature of student engagement with technology and content that prompted them to invest more time and effort into teaching with technology.

Theme 4: Expanded opportunities for depth and breadth of content delved into the potential offered by technology to reach deeper into course content. This section brought out some of the innovation and creativity participants used to expand the reach of course content to more fully engage students' thinking.

Theme 5: Technology, pedagogy, and content are seamless in learning discussed the link between the TPACK model and the teaching experiences of the participants. The TPACK model (the convergence of technology, pedagogy, and content knowledge) was unknown to them prior to the study, but this convergence emerged as part of their teaching practice.

The following chapter provides a discussion and recommendations as well as suggestions for further research.

CHAPTER 6

Discussions, Recommendations, and Conclusion

Summary of the Study

This chapter is dedicated to a discussion of the findings as they address the overarching research question of this study and prior literature discussed in Chapter Two. Also presented are implications of the study and recommendations for future research. The purpose of this study was to examine a shared phenomenon of six "digital immigrant" faculty members' experiences with technology and teaching undergraduate English at three different universities in the Midwest. The phenomenological nature of the study proved enlightening and produced rich data for analysis. Prior to this study, there had been little research in the area of higher education and the issues of critical digital literacy and teaching with a specific critical, rhetorical emphasis with technology in the English content area; the main emphasis of prior research on these topics has been linked with K-12 education. However, there is a growing body of literature in this area addressing the subject of student learning, critical thinking and how faculty integrate technology into the classroom (Jones-Kavalier & Flannigan, 2006; Knobel & Lankshear, 2002; Nasah, DaCosta, Kinsell, & Seok, 2010; and Tan, & Guo, 2009).

Most institutions of higher education have provided faculty at all levels with opportunities to come in contact with technology and explore its many alternatives. Part of the beauty and the curse of having such a wide selection of digital affordances is that teachers have what might be considered too many choices, but they also may select from a large inventory of technologies that address nearly any contingency in delivering English course content. How the participants in this study viewed this infusion of technology into

their professional lives results in having teachers who either embrace technology as an opportunity or see a challenge or barrier to technology's inclusion. However, the challenges that arise from the increasing integration of and evolution of technology are ones that all teachers must face.

The literature review in Chapter Two provided a number of positions on the issue of basic literacy, critical digital literacy, and the pervasiveness of technology related to educational issues. The literature review sought to explain literacy in all forms leading up to and including critical digital literacy and how present research views digital literacy as a means of contextualizing skills needed to be considered literate in a technological society.

The literature review contributed research about how technology influences education, the steps needed to reinforce critical thinking, and critical approaches to teaching "digital natives" with technology. Additionally, the literature review addressed how faculty and educational institutions have come to view technology and situate it within an educational framework. According to Thornton, Peltier, and Perreault (2004), our educational system is adept at renaming, and repurposing older practices and programs (p. 223), and the participants were adept using those techniques to integrate newer technologies into their pedagogy.

The literature review also revealed and explained the TPACK model established by Koehler and Mishra (2008), which was instrumental in establishing a pedagogical framework guiding the study and narrowing its focus. All the research culminated in describing the evolutionary nature of technology and associated challenges. However, these challenges should not cause any undo trepidation in faculty during classroom or

institutional paradigm shifts to new iterations of an older piece of software or digital device.

This qualitative study used a phenomenological methodology in order to gain an understanding of the participants' experiences teaching with technology and to explain how the participants experienced this shared phenomenon (Creswell, 2007, p. 66). The participants all experienced similar teaching situations (phenomenon) and the study sought to seek out the specific "meaning-making of the individual mind" (Crotty, 1998, p. 58) from each participant.

Six individuals were selected from three four-year universities in the Midwest. Each of the participants taught undergraduate English, and prior to the study, could be viewed as "digital immigrants," based on Prensky's (2006) definition as those who have not grown up with technology but entered the digital arena later in life. Based on their particular position within the university structure and their content area of English, these six people were "purposefully selected" (Creswell, 2009, p. 179) to relate their shared experiences.

Each of the six participants was involved in three interviews, the first two of which were face-to-face and held at their respective universities; the third was a member check conducted through email. Data collection consisted of transcripts of the interviews, vitae, syllabi, and assignments. Also under consideration as an ancillary data source was the reflective journal which proved useful first in bracketing out certain aspects of my own experiences and providing a "a truer summation of the participants' experiences" (Creswell, 2007) and secondly, providing a landscape to explore tangential discussions that took place during the interviews. Participant profiles were presented through the guiding framework of the TPACK model in chapter four.

After coding and analyzing the transcripts, five themes emerged illustrating the experiences of the participants:

1. *Early pioneers in using technology with English course content*
2. *Constant evolution of technologies proved to be challenging*
3. *The changing nature of student learning prompted investment in teaching with technology*
4. *Expanded opportunities for depth and breadth of content*
5. *Technology, pedagogy, and content are seamless in learning*

In the following section, the themes are discussed as they address the overarching research question. Following that section, I provide information about the implications of the study and recommendations for further research.

Summary Answer to Research Question

The overarching research question of this study is: *How do "digital immigrant" faculty teaching English at a four-year public university in the Midwest describe their experiences with technology and teaching their content area in undergraduate English?* Five themes emerged from the data analysis that answered this research question. Each theme, as a response to the research question, is summarized below.

1. *Early pioneers in using technology with English course content:* Participants expressed initial curiosity and interest in technologies of the time as well as how they used technology in the early phases of their careers. Furthermore, participants addressed the issue of critical thinking and how technology might affect teaching a rhetorical, critical thinking approach to content early on in their careers as they sought out the availability of and access to existing technology.

2. *Constant evolution of technologies proved to be challenging:* Participants noted major challenges and/or barriers to choosing, learning, and adapting technologies. All the participants thought time was a major influence for not learning or fully engaging new evolving programs, applications, or management systems. While the participants were challenged by the evolving nature of technology and the issue of time, the participants still maintained an interest in being able to choose an appropriate technology for classroom use. Once the technology had been chosen, the participants needed time to devote to familiarize themselves to it and then combine it with their content curriculum. However, participants realized that this technology might change and they would have to revisit the process once more.
3. *The changing nature of student learning prompted investment in teaching with technology*: Participants were prompted to invest more time and energy to learn and include more digital activities into their pedagogy based on what they noted as the changing nature of student learning.
4. *Expanded opportunities for depth and breadth of content*: Participants noted that changes and advances in technology have expanded their ability to add a greater number of resources to course content. Several of the participants pointedly addressed the advances in technology and delivery of course content, commenting how it is no longer desirable to lecture to an entire class of students whose brains are being digitally rewired. Therefore, technology prods faculty toward alternative delivery methods by bringing increasingly greater amounts of technology resources into the classroom to more fully engage digitally wired

students. As the participants started to use more technology, they discovered a depth and breadth of content unprecedented in prior generations. If Abby does not have a particular poem with her, she is able to Google it, and Randy is able to have students view a re-creation of one of Shakespeare's plays both examples of how technology is able to enrich the teaching and learning experience. Adding this depth and breadth to content, has altered the participants' pedagogy to the point of further embracing these digital resources.

5. *Technology, pedagogy, and content are seamless in learning:* Participants saw their pedagogy change over the years as a result of using technology. They expanded their knowledge of their content, and they increased their use of digital resources. The intriguing result of all this change they experienced was that they were completely unaware of how seamlessly those ideas converged.

Analyzing the transcripts brought out the ease in which these select teachers, without prior knowledge of the model, fell into its concept.

Discussion of Themes with Prior Literature

The following section reflects on how each of the emergent themes supports, extends, or does not support prior literature.

Theme 1: Early pioneers in using technology with English course content. Early in their careers, the participants expressed an interest in technology and sought ways to learn and then integrate it into their teaching while maintaining a critical approach to content. There was very little literature found on how early adopters' pedagogy was impacted by that initial exposure to technology. However, data analysis revealed that the participants' experiences point to a strong influence on the their teaching. Early on and throughout their

careers, a challenge they faced was how to blend technology with English content and critical thinking. Supporting that line of reasoning, Thoman and Jolls (2008) point out that, "Educators are often called upon to 'teach critical thinking' to their students, but the big questions is 'How?'" (p.5). Bazerman (2000) stated that:

> those of us engaged in composition may have at first thought we just wanted to help some students to articulate their thoughts and to succeed in college, we soon were drawn into the ways our students participate in society and the ways literate practices hold our world together. (p. 5-6)

Since students participate with new literacies (i.e., technologies), Brazerman is suggesting that faculty need to move into the same world as students and learn the literacies/technologies students know.

Another result of early adoption, noted by the participants and endorsed by Postman (1998) is the notion that there are positives and negatives inherent in adopting new technologies and a critical approach is a wise one. The participants each took a critical approach to both technology and English content.

Theme 2: Constant evolution of technologies proved to be challenging: The literature surrounding this theme seemed to garner quite a bit of attention. The participants each responded differently to the challenges presented by technology's evolution. A couple of them experienced excitement and saw opportunity while several others expressed frustration and resignation at having to learn new or relearn an older technology. Research also supports these positions (c.f., Ritz (2009) Rosenberg (2010) and Selfe (1999), but the majority of the research highlights the negative barriers present in learning or relearning technology (c.f., Gee (2010) Keen (2007) Kist (2009) and Miller (2009). Gentile and

Anderson (2006) stated that, "for many, the sheer challenge of trying to keep up with changes in new technologies is all consuming" (p 25), while Kingsley (2010) posits that, "[o]ne of the foremost challenges for contemporary educators is acquiring proficiency with instructional technology and the conceptual frameworks that support its meaningful integration into classroom practice" (p. 3).

Theme 3: The changing nature of student learning prompted investment in teaching with technology. This theme reflects a growing interest in a new direction for research and helps support and extend the literature. Participants observed the changing nature of their students learning and hinted at technology as a potential reason for the changes. This data supports Prensky's (2008) supposition about how digital native students are beginning to think differently than previous generations. His premise is that their use of technology is rewiring their brains and that they approach thinking and learning from a different angle. Because different parts of the student's brain are being stimulated, Prensky submits that the change in student thinking prompts increased inclusion of the technologies with which students are most familiar.

Gruber (2008) points out that, "while we agree that our students seem technologically savvy, we also often notice that they do not exhibit critical and analytical technological literacy skills" (p. 4). Kingsley (2010) supports Prensky's position with her observations that, "the resultant absence of meaningful technology integration in classrooms has led to a deep disconnect between the current generation of students who have spent their formative years immersed in technology and their teachers" (p. 4).

Therefore, not only do faculty need to continue to model a critical approach to content, they also need to continue their investment of time in learning technology to

better connect technology with content to ensure a greater impact on student learning.

Theme 4: Expanded opportunities for depth and breadth of content. Current literature and research surrounding the fourth theme as it relates to English content is scarce. References to content seem reserved for analysis of information content and there are links to critically analyzing content on the web, though little in the way of addressing how faculty are able to add depth and breadth to English content. Schlechty (2001) observed that, "even those students who are already skilled in the use of [technology] . . . seldom work with their teachers as they are learning content to produce quality presentations about that learning for later use (p. 21). Lea (2004) implies a relationship between content and course design that places the onus on the student rather than the teacher to dive deeper into content or provide outside sources for content consideration as she points out that:

> Supporting the relationship between writing and learning is not generally regarded as the remit of course designers. Subject specialists are usually primarily concerned with course content and, therefore, often overlook the ways in which writing and textual practices more generally are central to the process of learning. At the same time, research in the field of academic literacies has gone a long way in unpacking the complex relationship between writing and learning; this understanding now needs to be brought more centrally into mainstream course delivery. . . . In some contexts, students are now more likely to follow a weblink for a course resource as they are to borrow a book or journal article from the university library.

The implication made here is in contrast to the participants' experience in which they sought out digital resources appropriate for content delivery that allowed both

teacher and student to delve deeper into English content.

Gee (2010), Jones-Kavalier andFlannigan (2006), and Prensky, (2006, 2008) all intimate a movement away from the "sage on the stage" to "guide on the side" that presupposes a different relationship forming between student and teacher, teacher and technology, and student and technology. This new relationship with technology has provided the participants greater access to available digital resources and they are aware of the depth and breadth that is added to their content as a result.

Theme 5: Technology, pedagogy, and content are seamless in learning. Theme five tied directly back to the framework that guided the study in the form of the TPACK model, which displays the convergence of technology, pedagogy, and content knowledge. Thus far, references in the literature refer to both the origin pedagogical content knowledge (PCK) proposed by Shulman (1986) and then later refined and expanded by Koehler and Mishra in 2008 (TPCK/TPACK). Their major argument for constructing the model is that the development of the model by teachers "is critical to effective teaching with technology" (p. 3), and further explained that:

> integration efforts should be creatively designed or structured for particular subject matter ideas in specific classroom contexts. Honoring the idea that teaching with technology is a complex, ill-structured task, we propose that understanding approaches to successful technology integration requires educators to develop new was of comprehending and accommodating this complexity. (p. 62)

This model extends the thinking about ways in which technology integration and teaching come together and the literature reflects its growing popularity having been

employed by others, such as Hammond and Manfra (2009), Keeler (2008) and Swan and Hofer (2011) as well as the participants, though none were aware of its existence prior to the study.

Implications of the Study

The study's findings have particular implications for teachers, institutions, and other educational agencies regarding teaching with technology. Following that premise, certain inferences are made that suggest a paradigm shift in how teaching is situated within the purview of technology, the approach to teaching English content with technology, and changing methods to meet the demands of digital native students. The implication is that the paradigm shift presents certain challenges, exposed during data analysis, to the teaching profession that should be addressed. Three challenges, and the associated unpredictable nature inherent in teaching, emerged that had a direct effect on the participants' pedagogy and practice – the challenge of time, the challenge of defining technology, and the challenge of the changing nature of student learning.

Challenges involving time revolved around such matters as the time necessary to learn technologies and the time to fully integrate the technology into course content. In the early stages of their careers, the participants accepted the challenge and took the time needed to explore and work with emerging technologies. As time went on though, and digital advances became more recurring and unpredictable, participants became less enthusiastic about investing in learning technology. However, in contrast to that, the participants were almost forced to remain up-to-date with technology because of personal and institutional pressures as well as the realization that digital native students' thinking prompted an investment of time in learning technology.

Challenges also existed in defining technology, defining in the sense of selecting, learning, and adopting specific technologies that were appropriate for English course content as well as appropriate for institutions. Because of the abundance of digital resources available, the participants sometimes expressed annoyance at having to choose a technology to learn or relearn. For example, PowerPoint was learned and became a predictable, indispensable part of their practice, while institutionally, a university might randomly require new learning and constant change as it moved from WebCT to Blackboard and then continue to update Blackboard to newer versions.

Challenges existed for the participants in the realization that, because of the pervasive nature of technology, student learning is changing and faculty must adapt to those innate changes. The participants' ability to adjust and adapt to the unpredictable nature of evolving digital resources proved challenging. However, in that challenge and unpredictability came opportunity. The vast array of digital resources provided the participants with the opportunity to add greater depth and breadth to their content.

The implication for higher education is that digital resources are available to all English faculty who are willing to invest the time and energy to meet the challenges and at the same time, remain flexible enough to adapt to the unpredictable nature of teaching with technology as they teach English content knowledge. The resultant implication is that the TPACK model, espoused by Koehler and Mishra (2008), is a valid, workable framework from which faculty members and institutions may take direction as they move their teaching practice forward into the 21st century.

Recommendations For Practice

Based on the findings of this study, the following recommendations are made and couched within the TPACK model. The following recommendations are designed for higher education faculty teaching English and intended to strengthen English faculty's experiences in teaching with technology.

Technology

- *Institutions of Higher Education Need to Stay Current with Evolving Technologies.* Students are entering classrooms as native learners of the most recent digital advances. Institutions and faculty need to stay current with these advances or risk losing their engagement with students of today.
- *Institutions of Higher Education Need to Provide Resources for Faculty to Maintain Access and Availability to Advancing Technologies.* As new technologies emerge, institutions need to ensure faculty are made aware of and provided a variety of times for faculty to attend training to learn the technologies. Webinars are becoming more popular and available thereby, reducing the need to meet face-to-face and allowing faculty to set their own time schedule to learn newer technology. Additionally, institutions need to provide expert resources such as workshops, seminars, and conferences to faculty that present, support, and establish alternative delivery methods using technology.
- *Institutions of Higher Education Should Provide Incentives for Faculty to Learn and Use Technology in Their Content Courses.* Because participants in this study cited time as a strong challenge to learning and keeping abreast with evolving technologies, institutions should consider incentives (e.g. stipends, course

release) for faculty to attend and participate in opportunities to learn and implement evolving technologies.

Pedagogy

- *Faculty Teaching English Content Should Maintain an Emphasis on a Critical, Rhetorical Approach to Technology.* Technology should not determine content; however, technology should be employed at every available opportunity because of the increased opportunities for expanded depth and breadth of content.
- *Faculty Teaching English Content Should be Strongly Encouraged to Remain Knowledgeable of Current, Available Technology*. Faculty may make their own decisions about which technology to learn, but they should be kept appraised of digital advances and changes and strongly encouraged to do so. Particularly given the changing nature of students and how they engage in their learning (Carr, 2011).
- *Faculty Teaching English Content Should be Encouraged to Experiment with Alternative Delivery Methods and Pedagogies.* Curiosity, innovation, and creativity in developing assignments that meet the changing nature of digital native students should be supported.

Content Knowledge

- *Faculty Should Maintain an Emphasis on a Critical, Rhetorical Approach to English Content Knowledge.* Establish and maintain strong thinking skills that support critical analysis of content and technology.

- *Faculty Should Employ Critical Analysis Skills to Determine the Appropriate Technology to Use for Content Delivery*. Faculty should also model this critical approach for the students.

Recommendations for Further Research

Recommendation 1. Replicate the study with a focus on undergraduate composition at different types of educational institutions (e.g. community colleges, private liberal arts, for profit) to see whether the themes remain constant across institution type.

Recommendation 2. Replicate this study in different content areas (e.g. sociology, math, hard sciences) to see whether the themes remain consistent across content area.

Recommendation 3. Use the findings from this study to develop a survey instrument to gather data from a larger faculty base on "digital immigrants'" experiences with technology evolution in their content areas.

Recommendation 4. Theme 3 focused on the changing nature of student learning (noted in Carr, 2011) and other research focused on the impact technologies have on the cognitive patterns of students today. More research in this area is needed to determine those effects on current pedagogy.

Conclusion

A concept that emerged early on and continued throughout the literature review was presented by Prensky, (2006) as he described the two factions most affected by technology, the "digital natives and the digital immigrants." These two descriptors were a venue to help situate, in a generational sense, the teaching experiences of the participants as they dealt with pedagogical, technology and content issues. However, I found the participants well versed in technology and associated nuances, and considered them more

integrated with the digital world than first thought. Upon reflection and analysis of the data, another term needs to be developed to describe teachers who, while not having lived with technology their entire lives, are as fully engage with technology as their "digital native" students. This condition might be unique to teachers whose teaching and evolving technologies have grown side-by-side; therefore, the term "digital immigrant" does not adequately identify these participants, nor others such as they. I would suggest the term "digitally acculturated" to be a more applicable term for these teachers given the way in which the participants assimilated so fully and completely into the digital culture.

The other issue that sets the participants apart from many is the approach to critical thinking that they employ in their classes. The participants do not articulate the terms literacy or digital literacy, specifically teach critical digital literacy, nor address literacy in general, but they do teach a critical, rhetorical approach to their English content and in the process of modeling technology use, demonstrate a critical approach to using digital resources.

Final Reflection

These findings contain useful information for faculty as they continue the journey of developing a literate society through course content and exploring the possibilities of English content innovation with technology. Since the prior literature surrounding these issues is mainly focused on K-12, the hope is that this study will add to the growing body of knowledge of how higher education is affected by teaching with technology in the content area.

Prior to this study, my experience has shown that many teachers view technology as a separate element of their teaching practice, not an integrated pedagogical component.

Perhaps a reason for the separation stems from the constant interruptions found in classrooms – cell phones going off, students with heads bowed in texting prayer, students in the lab with wandering off to Facebook or to catch scores during March Madness. Teachers may view these activities as separate from the content of the day and challenges rather than opportunities to experiment with including the digital devices that occupy students' lives into teaching practice. Therefore, faculty may be less inclined to include those digital devices as learning "tools."

Other areas of interest include teacher preparation. As more and more "digital immigrants" retire, digital native teachers will start to become the norm. A potential fear that I have is that the digital native teacher may place greater emphasis on technology over English content. There needs to be a balance between the two that recognizes the great opportunities that lie within technology and the fact that teachers are hired and required to teach a particular content areas. The fundamental concepts within the content area are the criteria by which we determine knowledge.

APPENDIX A

RECRUITMENT EMAIL
Dear (*insert name*),

My name is Bob Corey. I am doctoral student in Educational Leadership at Drake University. I have completed my coursework and am in the process of planning my dissertation study, entitled — The Evolving Nature of Literacy: From Cave Squiggles to IPads: Higher Education English Faculty Perspectives on Critical Technological Literacy.

For this study, I will conduct a qualitative investigation on what characterizes the nature of literacy and the teaching of technological literacy in undergraduate English courses. I am interested in the professional, educational, and personal experiences of undergraduate English faculty at four-year public universities who teach with technology. While research exists on numerous K-12 experiences, I feel the experiences of English faculty teaching with technology in higher education is underrepresented.

In collecting data for the project, I will interview English faculty at four-year public universities in the Midwest. Since you currently serve in this capacity, I would like to invite you to participate in this study. Your participation would last approximately two (2) weeks. During that time, I would schedule three (3) interviews, each lasting approximately 90 minutes. I would like to conduct two in-person interviews on your campus and one additional phone interview approximately one week after my visit.

My experience as an English instructor, both K-12 and university levels, makes this topic especially interesting to me. I would greatly appreciate your participation in this study. While participating will require a bit more time than a survey or basic interview, I am confident that this research collected from interviews will provide valuable information for other teachers who strive to weave advances in technology into our courses

Please know that your participation in my study is voluntary, and you may withdraw at any time. Further, if any questions make you uncomfortable or you wish not to answer, you will not be required to do so.

If you are interested in participating, please contact me via email at bccorey@iastate.edu or my cell phone 515-229-6388.

Thank you for your time.

Sincerely,
Bob Corey
Doctoral Candidate
Drake University

APPENDIX B

INFORMED CONSENT DOCUMENT
Title of Study: The Evolving Nature of Literacy: From Cave Squiggles to Critical Technological Literacy: Higher Education English Faculty Perspectives on Critical Technological Literacy
Investigator: Robert Corey, Drake Doctoral Student
This is a research study. Please take your time to consider if you would like to participate. Please feel free to ask questions at any time.

INTRODUCTION
The purpose of this study is to investigate what characterizes the nature of literacy and what characterizes the nature of teaching critical technological literacy through the examination of the personal, educational, and professional experiences of English faculty who currently use technology to teach undergraduate English courses.

DESCRIPTION OF PROCEDURES
If you agree to participate in this study, your participation will last for two weeks. During that time, I will schedule and conduct three (3) interviews, each lasting approximately 90 minutes. I would like to conduct two in-person interviews on your campus and one additional phone interview approximately one week after my visit.

During the study, you may expect the following study procedures: You will be asked to take part in a series of three semi-structured interviews, and answer questions regarding your personal, educational, and professional experiences related to teaching critical technological literacy to your undergraduate students. You may skip any questions that you do not wish to answer or make you feel uncomfortable. The interviews will be audio recorded and then transcribed, with tapes to be erased following the transcription (no more than 60 days after the final interview). In order to protect your anonymity, a pseudonym will be used throughout the interview process. I will also request copies of your syllabi from your courses over the last two years, if you are comfortable sharing these.

RISKS
There are minimal foreseeable risks at this time from participating in this study. Information of a personal or professional nature may be sought by the researcher, but you may opt out of questions at any time.

BENEFITS
If you decide to participate in this study there may be no direct benefit to you, although the information may prove useful to you and others who teach similar courses by contributing to the literature on the characteristics of literacy and teaching critical technological literacy in undergraduate English courses at public four-year universities.

COSTS AND COMPENSATION
You will not have any costs from participating in this study. You will not be compensated for participating in this study.

PARTICIPANT RIGHTS
Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

CONFIDENTIALITY
Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Drake University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken: The researcher is the only person who will know the identities of the participants, whose names will be replaced by a pseudonyms. After the interviews have been transcribed the interviews will be deleted from the audio tape. Throughout the study, data will be kept on a computer, in the locked home of the researcher. All potential identifiers will be removed in the final dissertation. In the data analysis process, the findings (for your data only) will be sent to you via email. If you feel that potential identifiers are present, they will be deleted. If the results are published, your identity will remain confidential.

QUESTIONS OR PROBLEMS
You are encouraged to ask questions at any time during this study.
For further information about the study, contact investigator Bob Corey at bccorey@iastate.edu or 515-229-6388 or you may contact my dissertation advisor Dr. Robyn Cooper at robyn.cooper@drake.edu or 515-271-4535.

If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator (515-271-3472) or IRB@drake.edu.

PARTICIPANT SIGNATURE
Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study.

Participant's Name (printed) _____

_____ _____
(Participant's Signature) (Date)

INVESTIGATOR STATEMENT
I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate.

_____ _____
(Signature of Person Obtaining Informed Consent) (Date)

APPENDIX C

APPENDIX C: INTERVIEW PROTOCOL

A set of three semi-structured interviews will be used to gather data from each participant. The following questions will guide the interview sessions, although I may interject with follow-up questions depending on the flow of the interview.

Interview One – Background Information/Career History

1. What is your professional background/teaching experience (vitae) and professional rank – full, assistant, associate, lecturer, adjunct
2. What courses do you teach (currently or all past courses?)
3. How long have you taught undergraduate English courses?
4. What is the appeal of teaching undergraduate English courses?
5. Explain your teaching philosophy.
6. What role does technology play in your teaching/pedagogy?
7. Tell me about your educational background.
8. What made you want to teach?
9. Have you always taught at the university level?
10. Describe any previous teaching experiences.
11. In previous positions, what have been your duties and responsibilities?
12. What are your current duties and responsibilities?
13. Describe any experiences that influenced your teaching.

Interview Two – Details of current teaching – TPACK

Technology is a broad concept that can mean a lot of different things. For the purpose of this questionnaire, technology is referring to digital technology/technologies— that is, the digital tools we use such as computers, laptops, iPods, handhelds, interactive whiteboards, software programs, etc.

Technology Knowledge

1. How do you view/define critical technological literacy?
2. To what degree do you consider yourself technologically literate?
3. Describe the barriers you have encountered to learning technology.
4. Describe personal learning experiences using technology.
    a. Maybe the questions from article here
    b. 1. I know how to solve my own technical problems.
    c. 2. I can learn technology easily.
    d. 4. I frequently play around with the technology.
    e. 5. I know about a lot of different technologies.
    f. 6. I have the technical skills I need to use technology.
    g. 7. I have had sufficient opportunities to work with different technologies.
5. Describe personal teaching experiences using technology.
    a. Looking for assignments or activities that stand out but don't want to limit it.

Content Knowledge

1. What steps do you take to develop your understanding of literacy and undergraduate English?
2. Do you teach a critical/rhetorical approach to your courses?
3. What do you want the outcome of your course to be?
4. What do you expect students to learn?
5. What do students need to know and be able to do after they finish your course? – may depend on the course.
6. What do you expect the students to know prior to your class?
7. What do students need to know in order to successfully complete the course both from a critical/rhetorical nature as well as technological nature?
8. Is teaching a critical/rhetorical component a natural part of your teaching philosophy?

Pedagogical Knowledge

1. Has your pedagogy changed over the years? If so, how has it changed and what has prompted the change?
2. How do you adapt your teaching style to different learning styles? What strategies/methods do you use/found most effective?
3. What types of assessment do you use and do you see one type as more effective than others?
4. What classroom management strategies have you developed and which is the most effective?
5. How do you assess what students know prior to the start of you courses?

Pedagogical Content Knowledge

1. What teaching strategies do you use to guide student thinking and learning in your undergraduate English courses?
2. Explain the approach you take when teaching undergraduate English.

Technological Content Knowledge

1. What specific technologies do you use to enhance literacy?
2. What technologies do you find the most useful in teaching undergraduate English?
3. What technologies would you like to include for teaching undergraduate English?

Technological Pedagogical Knowledge

1. What technologies do you use to enhance teaching approaches for your course?
2. What technologies are most appropriate for enhancing students' learning for a class?
3. What strategies/thinking do you use to prepare technology lessons for your course?
4. As we all do, do your reflections on the success/failure of technology enhanced lessons affect changes in teaching strategies?
5. What adaptations to technology have you used
6. What technologies would you like to include in your approach to teaching?
7. What technologies do you think students should know before leaving your course/graduating from college?

TPACK

1. Do you teach lessons the appropriately combine literacy, technologies and teaching approaches?
2. How do you select technologies to use in your classroom to enhance what you teach, how you teach, and what students learn?
3. Describe how you combine content, technologies and teaching approaches.
4. What role do you provide in helping others coordinate the use of content, technologies, and teaching approaches?
5. How do you select technologies that enhance the content for a lesson? Provide a couple examples of the technologies and lessons.
6. What motivation(s) is there to use/continue to use technology as a tool to develop critical technological literacy?

Modeling

1. Do you feel you model the skills you want students to learn? If so, explain the steps you take to model the skills you want students to learn?
2. What assignments/lessons have you developed/provided that model combining content, technologies and teaching strategies? Explain the development of the assignment/lesson. What changes have you made to accommodate changes in technology or changes in student skill levels (both literacy and technology skills)
3. What strategies do you employ to establish and model a critical/rhetorical approach to technology and English?
4. Do you allow/encourage students to model/teach technology skills you do not have? Explain how this approach works, how well it works, and what benefits you and/or students derive from this type of teaching method.
5. Describe a specific episode where you effectively demonstrated or modeled combining content, technologies, and teaching approaches in a classroom lesson. Please include in your description what content you taught, what technology you used, and what teaching approach(es) you implemented. If you have not had the opportunity to teach a lesson, please indicate that you have not.

Interview Three: Reflection on Interviews

1. What is the future for critical technological literacy?
2. What do you think it means to be technologically literate?
3. Are you happy with the technological support you receive?
4. Would you wish to take on other technology roles? What role do you see adopting?
5. What advice would you give to preservice teachers about how to use technology?
6. What advice would you give peers about how to use technology? What would you say to help them balance technology and pedagogy?
7. What are the benefits of using technology in the classroom? Barriers or drawbacks?
8. Considering the previous conversations, why do you do what you do? What importance do you place on your course/teaching?
9. Is there anything more you would like to share about your experiences?

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